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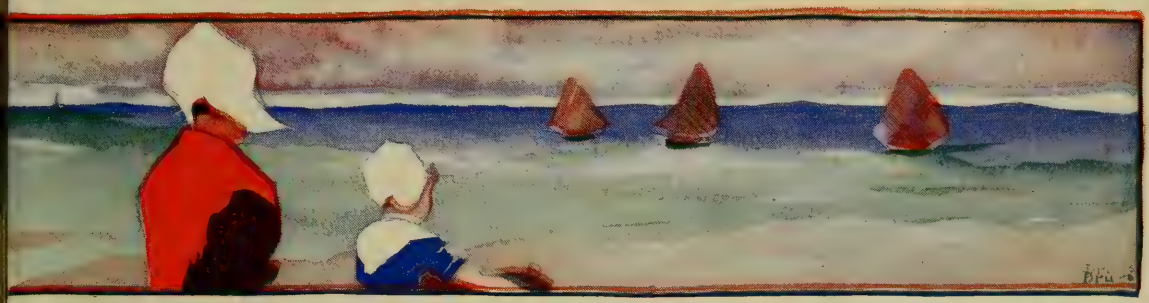

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CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

VOL. VII SAN FRANCISCO, CALIFORNIA, MAY, 1903 NO. 1

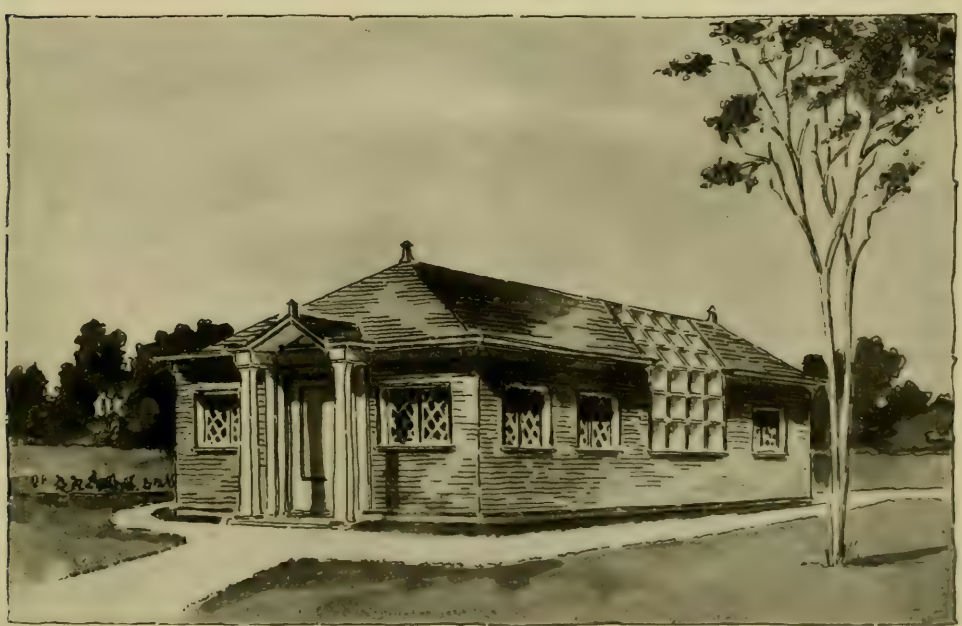
The Dilemma of an Amateur Photographer

By HERBERT WILSON

For a long time I have been considering the advisability of building a small studio at some distance from my house. The family, alarmed at the continual growth in size and quantity of the implements of the craft, has encouraged the idea with avidity. When I have explained some particularly disappointing failure by reference to the uncertain light from one upright window or the lack of facilities for properly developing my plates, some one has always been ready to call attention to my long delayed plan of building a studio on the lawn.

As I have had some experience in an architect's office, having started out in early life with a firm determination to startle the architectural firmament with the brilliancy of my success, I had some foundation upon which to base my ideas as to what would be the proper thing in the way of exterior and interior arrangement. For several months my interest in architectural matters revived and my spare time was given to the production of scores of sketches and plans, all of them embodying good ideas, but sooner or later objectionable features appearing, they were discarded.

Then, business of a pressing nature called me to a distant city and in the press



I am rather pleased with the exterior

of detail connected with my work my ambition in Photography suffered a relapse. However, upon my return, I found that the family, taking advantage of my absence, had cleared all of the corners, closets and shelves of my photographic belongings and piled them in the basement. There had been a house party and it seemed that those instrumental in the move were not over-careful in their handling of things, and as a result two of my cherished backgrounds much resembled doormats, while several glass bottom trays constructed at great expense of time and patience had been punctured most successfully. This aroused my combativeness and as a result I unearthed my sketches and produced the plans that accompany this narrative. While I am satisfied with the exterior appearance of the studio, I am in serious doubt about the interior. Living as I do, at a considerable distance from the centers of population, and hence from modern photographic studios, I have had but little opportunity to observe interior arrangements. I am somewhat diffident about meeting strangers, and when I am in the city I steer clear of the professional photographers, so that my knowledge on the subject is gained principally through my own necessities.

MY IDEA OF THE INTERIOR ARRANGEMENT

Now my object for thus burdening CAMERA CRAFT readers with my tale of woe is to ask their advice and co-operation in arranging the interior of my studio. I wish it to be a model one, for although I am but an amateur of the very weakest type, I do considerable work and am more than anxious to make no mistakes in the construction of my workshop.

I have submitted a plan showing my own ideas of arrangement and also a little sketch of the reception room in which I propose to greet my friends. I feel that I am asking a great deal when I request the assistance of the readers of this magazine to help me out with suggestions, but I rely a great deal upon the brotherly feeling that exists in the ranks of the amateurs and I am sure that the step I have taken will result in clearing up my muddle and, as the editor of CAMERA CRAFT has taken considerable interest in my dilemma, I do not think that I have done wrong in making public this appeal for assistance.

NOTE—CAMERA CRAFT *will pay $25 for the best article submitted in answer to Mr. Wilson's request. Wherever possible drawings or simple sketches should accompany the matter.—Editor.*

THE RECEPTION ROOM

Printing by Electric Light

Frank A. Brunner of Philadelphia, recently gave a demonstration at the Franklin Institute of a machine for printing from photographic negatives on printing-out papers by electric light.

The machine is octagonal in form and takes up a floor space of 3 x 3 feet. Only one arc lamp is required to print eight negatives, 11 x 14 inches, or a greater number of smaller ones, one lamp being placed in each machine. The machine exhibited turned out 5 x 7 prints at the rate of 90 per hour, which would mean from 800 to 900 prints in a working day of from nine to ten hours.

The arc lamp is of special design, producing a light of a bluish cast, which is rich in actinic value.

"It is a well-known fact," said Mr. Brunner, "that the actinic rays of light are blue, indigo, violet and ultra violet. These rays are present in the rays of the sun, but the ultra violet rays are lost to a great extent in passing through the earth's atmosphere. It is apparent that a properly constructed arc lamp is more efficient than even the sunlight, inasmuch as the actinic rays can be obtained in abundance by a suitable construction of the lamp. By actual experiment it has been proved that the machine will print any of the printing-out papers in one-half the time required by a bright sunlight. By the construction of the machine the rays of light are thoroughly diffused, the plates deflect and the cylinder shape of the frame reflects the light at a multitude of angles, giving perfect diffusion all over the plate."

Speaking of its commercial value, the inventor said that by its use the photographer could tell just the amount of work he could do in a given time, independent of the sun.

Medium-Power Telephotography

By G. H. Deller, M. D.

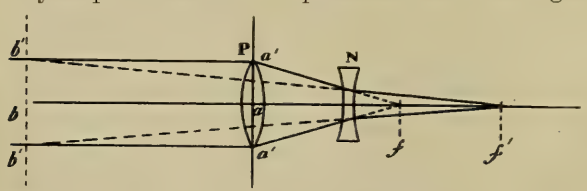
Photography has only had the assistance of the telephoto lens for the last ten years or so, and its use for ordinary purposes is more recent still. Most of its earlier achievements were in the direction of startling magnifications of very distant objects, and especially for mountain views, and its great value as representing a battery of long-focus lenses for every-day work was largely overlooked. The telephoto lens as a whole consists of two parts: (1) An ordinary (positive) lens; (2) a negative lens, placed behind the other, and acting, it may roughly be said, as an enlarger of the (ærial) image formed by the positive. The negative lens is fixed in a special mount to which the positive can be attached, and the distance between the two lenses varied by means of a rack and pinion or otherwise.

It is advisable to give a brief description of the optical principles involved, as they have a distinct bearing on the practical working of the lens; and first of all stress must be laid on the elementary fact that the size of the image of a given object which a lens forms is directly proportional to the equivalent focal length of that lens.

Now, with an ordinary lens this equivalent focus is not widely different from the distance between the lens itself and the focusing screen, but with a telephoto lens the equivalent focus is much greater than the distance between the lens and screen or "back focus," as this is called.

The state of affairs is as follows: The equivalent focus of a lens is measured from the principal plane of the lens—we can neglect now the fact that there are really two of these planes—which is usually situated not far from the center of the lens mount. When the negative lens is placed behind the positive, the principal plane of the system is moved far in front of the lens itself, with an obvious gain in the equivalent focal length of the system; and at the expense of comparatively slight additions to the camera extensions necessary to obtain a focus, this equivalent focus can be progressively and largely increased.

A diagram (with the relations purposely exaggerated for the sake of clearness) may help to render this explanation more intelligible.



Let P represent the positive lens which would normally bring parallel rays to a focus at *f*. The negative lens N is interposed and deflects the converging rays so that they come to a focus now at *f*1, and the principal plane of the system may be represented as removed to *b'b* instead of being as before at *a'a*. The distance *ff*1 represents the slight increase in camera extension which has been required to gain an increased focal length represented by *bf*1. The amount of increase in the equipment focal length gained by a given increase in camera extension depends on the proportion between the focal lengths of the positive and negative elements of the lens, and whether a telephoto system shall be described as of low or high power depends on this proportion. The dividing line may very roughly be taken as the proportion 2 :1. If the focal length of the positive be much more than twice that of the negative ele-

ment, the system is said to be a high power one; if only twice or less, it will be found under the heading "low" or "moderate power" in the makers' catalogues.

It may be asked why should not this proportion always be kept high and the lower degrees of magnification obtained by diminishing the camera extension. The main reason against this is that with high power systems the plate will not be covered with the very small camera extensions necessary for a moderate degree of magnification. You can't eat your cake and have it; and if astounding pictures of some mountain summit thirty miles off magnified eight to twelve times are desired, you must be content with a lens comparatively useless for these vastly more numerous opportunities where the magnifications required will range between 2½ to 6 diameters. Of course, where expense can be disregarded a separate high-power negative and mount can be obtained, but I think it will be found that the occasions for its use are few and far between.

Buying a "telephoto lens" means, for the possessor of a good R. R. working at *f*/8, or, better, anastigmat of the same or greater aperture, merely sending this lens to one of the well-known makers of telephoto outfits (such as Dallmeyer, Beck, Voigtländer, Bausch & Lomb) and having fitted to it a negative lens of appropriate focal length, in a special mount provided with some means (usually, rack and pinion) of varying the distance between the two lenses. The R. R. is merely screwed into the mount when required for telephoto work, and is not interfered with in any way.

With some makes the back lens projects two or three inches into the camera, lessening the strain on the front, it is true, but also lessening the effective camera extension. In these cases if a behind-lens roller-blind shutter has been used, it must be removed and a before-lens shutter substituted (or one of the "Unicum" type).

A flange a size larger than fits the positive lens may be required, in which case the makers supply an adapter, so that the positive can always be used with this larger flange.

Assuming, then, that we have had our ordinary lens fitted, as described, with a negative element of known focal length, which should be half that of the positive, or rather more if anything, we will examine the peculiarities of a telephoto lens by a practical trial.

Set up the camera with the legs of the tripod widely separated for the sake of firmness, screw the R. R., or whatever the positive lens is, into the negative mount, and fix to the camera front.

Extend the camera fully, and direct it toward some prominent fairly distant object. Then, with the positive lens at full aperture, using the rack and pinion on the lens mount, alter the distance between the positive and negative lenses until the object comes fairly into focus. Then adjust the camera to bring this object to the center of the focusing screen, and with the cloth well tucked over the head to obtain an exact focus, again using the lens rack and pinion. The camera rack itself can be used for focusing, but I never do this myself. It alters the magnification, tends to disarrange a second stand, if one is used for supporting the front, and, more important still, one never feels quite certain when the exact focus is obtained, a considerable movement of the *camera* screw making comparatively little difference to the sharpness of the image.

For moderate power work there is no necessity whatever to use a focusing magnifier for ordinary purposes. If, however, for any special reason its help is needed,

the focusing screen must be properly prepared for its use. The magnification of the grain of the ground glass makes it nearly useless otherwise. This is done by making a fine pencil mark on the ground glass screen and then cementing over this an ordinary microscope cover glass by means of Canada balsam. The magnifier is applied to the screen and adjusted till the pencil mark is in focus, and then is used to determine the exact focus of that part of the view which occupies the prepared part of the screen, which may be at the center or elsewhere. This has been made practically clear glass by the Canada balsam, and very exact focusing is possible.

I have found this useful when the camera extension is very great, *e.g.* when an additional front is used, for with the head brought quite close to the focusing screen the arms have more freedom for manipulating the now somewhat distant rack and pinion.

In a poor light, and with very distant objects, what is called differential focusing will be found the best method. This merely means that the image is first put just perceptibly out of focus by racking the lens in one direction, and then just as much out by a reversed movement, and after one or two trials leaving it in as nearly a middle position as can be estimated. This method gives much better results than would seem probable from the description.

After getting used to the focusing methods the variations in magnification and covering power of the lens with different camera extensions should be noticed. As the camera is racked in (and the image refocused) the size of the image rapidly lessens, and at last if the corners of the screen are carefully observed they will be found to be dark. Now stop down the positive to, say, *f*/16, and the dark portions will be found to have encroached further. It should be found by trial at what particular extension the screen is just covered (using a medium stop because the covering power is slightly diminished by stopping down the positive lens), and this point should be marked plainly on the baseboard, so that there may be no danger of less extension being used and a plate being spoiled, as may easily otherwise occur when the light is bad and one is hurried. Of course, it may happen that a 5 x 4 area on a half-plate will contain all that is needed (and this especially in portraiture), then a smaller camera extension can be used.

Now comes the important matter of finding the magnifying power of the lens, and from that its equivalent focal length and the exposures necessary at the various camera extensions. This is not nearly so difficult as is often thought, and can be calculated by each worker for his own apparatus without any reference to elaborate tables, though he will find it a great advantage to make a very simple one for his own lens and camera, a glance at which will save any complicated calculations in the field.

It is best to take one method of finding the required focus, etc., and stick to it, and then to treat the telephoto simply as an ordinary lens of this focal length and aperture, making variations in exposure according to distance, color of object, etc., in the usual way.

First the focal lengths of the positive and negative components must be known. That of the former, if in doubt, can be easily found with sufficient accuracy by several well-known methods. The focal length of the negative element can be obtained from the maker if it is not engraved on the mount itself. The necessary rules are:

MISSION ARCHES
FROM A PINHOLE PRINT
by ETHEL PHOEBE BAILEY

(1) For the magnification produced by the negative element at a given camera extension. Measure the distance from the back of the negative lens to the plane of the focusing screen. Divide this by the focal length of the negative lens, and add 1.

(2) To find the corresponding equivalent focal length. Multiply the focal length of the positive lens by the magnification just found.

(3) To find the intensity ratio (*f*/ value) of the system. Divide that of the positive lens by the magnification.

Examples:

(1) Back focus is 8 inches.
Focal length of negative is 4 inches.
Magnification$=\frac{8}{4}+1=3$ diameters.

(2) Focal length of positive is $7\frac{1}{2}$ inches.
Equivalent focus of the system is $7\frac{1}{2}\times 3=22\frac{1}{2}$ inches.

(3) If stop used in the positive is $\frac{f}{6}$.
Aperture of the system is $\frac{f}{6\times 3}=f/18$.

(If *f*/11 is used, the corresponding aperture is *f*/33, and so on.)

Then having a lens working at *f*/18, give the same exposures as would be needed for similar subjects with any lens at *f*/18.

To make the table spoken of above, the three necessary numbers should be calculated first for that camera extension which will just cover the plate, which extension it was advised should be plainly marked on the baseboard, *e.g.* by an arrow scratched on the moving part and the figure representing the back focus on the stationary part. The example first given is an actual instance with my own half-plate camera. Now extend the bellows, say, 2 inches more and mark this point with the number representing the new back focus (10), and calculate as before. The magnification now is $3\frac{1}{2}$ times, the equivalent focus, roughly, 26 inches, and the aperture *f*/21; with an additional 2 inches we get 4, 30 inches, *f*/24. A final calculation can be made for the fullest extension possible.

I have found these four steps quite sufficient for my purposes, but of course the divisions can be as small as desired. The numbers can be written on a card or in the exposure notebook, though a reference will soon become unnecessary, as one gets to remember them easily.

Fractions can be neglected (except for the magnification), as the loss in accuracy by taking the nearest whole number will have no appreciable result. It is also easy to estimate the required exposures for those apertures which are different from the usual *f*/16, *f*/22, *f*/32, etc. *E.g.* to take *f*/19 as requiring an exposure midway between that for *f*/16 and that for *f*/22 is quite allowable, and the error would not be appreciable if *f*/31 were allowed to pose as *f*/32 in the calculation of exposure.

The use of the table in practice is obvious enough. The view is selected, focused, the camera racked in or out until the best arrangement seems to be obtained; a glance at the baseboard shows the back focus, and a glance at the card the actual working aperture, and if now the positive should be stopped down, say, from *f*/8 to *f*/16, the previously calculated exposure with the telephoto will be increased four times, just as it would be if the positive lens was used alone.

It is sometimes useful to know what camera extension would be required for a certain magnification, and this is obtained by multiplying the number of magnifications, less one, by the focal length of the negative lens.

The question as to how exposures must be modified in telephoto work, may be roughly answered by saying that, for medium distances, little or no modification is needed, and that, for the extremes of very distant and very near objects, the modification is in opposite directions. With the latter, the greater camera extensions required to get a focus, increase the exposures considerably with distant objects; on the other hand, the exposures have to be cut down, but simply and solely because the objects *are* so distant as to be outside our experience with short-focus lenses, where there is usually something comparatively near, which governs our exposure, and prevents our considering the column headed "Distant Landscape" or something of the kind in the usual exposure tables.

As a matter of fact, this is the column we require for distant (half mile and more) moderate power and telephoto work, and if the object should be, say, some isolated mountain peak, with no part nearer us than ten miles or so, these exposures will need reducing by one-half. In all this, I am assuming that orthochromatic plates and color screens are used. It is simply a waste of time to take wholly distant views without them.

The telephoto lens has a few drawbacks peculiar to itself, and of these the chief is its extreme susceptibility to vibration. The reason for this will be readily comprehended from the description and diagram already given, showing how the principal plane is situated far in front of the lens itself, any shaking of which must produce exaggerated effects on the plate.

This, like the other troubles of telephotography, becomes more apparent the greater the magnification, and when the camera is only partly extended, there is little to fear, except in a high wind. At full extension, however, the difficulty is often great. A strut extending from half way up the front leg of the tripod to the front of the camera is often recommended. I have one of these, but never use it, not possessing a tripod rigid enough when extended to make a firm base for the strut. What is required is a *separate* support, no matter how slender. I have often used a walking stick, resting one end on the ground, and adjusting the height of the camera so that the front shall be just propped up by the other end. It is much better to *insure* absolute freedom from vibration by the use of one of the very light, compact and cheap (mine cost 5s.) bamboo tripods which, though often too slender to fulfil their proper purpose of occasional support for a hand camera, answer admirably as an additional support in telephoto work. There is a great increase in the ease of focusing, too, when one has a support under the lens, which prevents the weight of one's hand causing the image on the screen to jerk about while the rack and pinion is being manipulated.

Heavy, square-bellows cameras and corresponding stands are usually the forms recommended for telephoto work, but personally I have always used a light conical bellows camera, preferring to take the little extra trouble and few ounces weight involved by a light supplementary stand to the constant burden of heavy and bulky apparatus. Moreover, with such an extra stand the freedom from vibration is greater than with any, no matter how heavy and solid, single stand. I have taken telephotograms in a gale of wind, with a camera extension of 30 inches with such an apparatus without a sign of vibration showing. This second stand is not attached to the camera, but the flat part around the screw is simply used as a rest for the front of the camera baseboard, the stand being raised so that it actually does support this front.

Another drawback of telephotography is the necessity for increased exposure in-

volved by the lessened working aperture of the lens. Considering that the exposures required increase as the *squares* of the magnifications, it will be seen that this difficulty also is especially one of high power work, though shutter exposures with even moderate powers will only give good results under exceptionally favorable conditions.

Haze and variations in the density of the atmosphere produced by summer heat, are said to cause difficulties, but I have never experienced them, even in South Africa with the thermometer at 95° in the shade. Mere haze effects in any case are largely removed by the use of the yellow screen, and I think faulty negatives can rarely be attributed to either of these causes. The small covering power of the lens at the shorter camera extensions must always be borne in mind when desiring to use the rising front, or a negative showing bare glass at two corners will be the result.

For landscape work, stress cannot be laid too strongly on the advantage, absolute necessity in some cases, of using orthochromatic plates and a yellow screen; and it may be mentioned that the home-made screens of stained gelatine or collodion will be useless with a telephoto lens, unless the glass which forms their base is optically worked. When the back lens projects into the camera, the screen is most conveniently fitted to this lens. Otherwise, it can be attached to the inside of the camera front, for if a before-lens shutter is used it is not easy to adjust it elsewhere. For most purposes, a screen increasing exposure four to six times will be sufficient.

Backed plates should be used. With many subjects I do not think myself that any perceptible difference is made by backing, but then one never knows when a subject in which it will make all the difference will turn up. I do not think there is the slightest need for it in portraiture.

The characteristic tendency of orthochromatic plates to give hard and "contrasty" negatives on prolonged development is of great value in some branches of telephoto work. When the view is distant, contrasts small, and the atmosphere hazy, the use of these plates with a well-restrained pyro developer will give results which would not have been expected when the gradual graying over of the plate in the early stages of development was observed. Negatives of very distant telephoto views behave much like an ordinary case of over-exposure, and in fact the treatment for them is similar. Development *must* be slow; the plate must be kept covered from the red light, except when examined, and the dish must be rocked. So long as the edges covered by the rebate of the dark slide remain clear, the longer the development, the greater the contrast; and if the plate becomes too dense for easy examination by transmitted light, the appearance of the image on the back must be the guide when to remove it. The pyro stain usually resulting from this prolonged development is particularly advantageous in these cases. Should there have been actual over exposure, and the final result be flat, reduction with Farmer's reducer, followed, if necessary, by intensification with mercury and ammonia, will produce a great improvement. For ordinary landscapes with comparatively near foreground no special method of development is needed, and for portraiture and shutter exposures the procedure should be the reverse of that described above. A very quick plate must be employed, and, as under exposure and harsh contrasts are the main evils to be feared, a diluted developer should be used, keeping the quantity of pyro down; or metol may be used, either alone or with pyro. Development will proceed as usual, and care should be taken to stop it before the high lights get too dense. If the negative, as will often be the case in short-exposure work, be too thin, it should be intensified by the mercuric iodide intensifier, or by uranium, if the image is actually "ghost-like."

FOUR PRINTS *of* CHILDREN

By ADELAIDE HANSCOM

SHOWING AN UNUSUAL HANDLING AND A RARE DELICACY SELDOM FOUND IN THE WORK OF MODERN MAKERS OF CHILDREN'S PORTRAITS

California Camera Club Exhibit

At the Chicago Society of Amateur Photographers

By Robert Craik McLean

An exhibit of some fifty prints from the California Camera Club has been attracting considerable attention. Not so much through the subjects as the manner in which the composition and the printing and mounting is done. That simple things can be handled in an artistic manner and that much added effect can be obtained by appropriate printing and mounting is most becomingly taught by this friendly contribution to our club walls.

O. V. Lange's studies of wild mountain lilies, wild poppy and night-blooming cereus show what can be done illustratively in the handling of flowers, as also does D. P. Heap's exquisite rendering of the Canada thistle. It was a delightful thought of Oscar Maurer to send his portrait studies, for they show how the artist of landscape and scene brings an artistic perception into even that difficult field of camera work, or did he send portraits to offset Mr. Genthe (the king in portrait work on the Coast, according to eastern ideas) in the several excellent Mexican scenes which he contributes? This adaptability in the handling of both portrait and landscape work is also shown in that of H. D'Arcy Power's portrait study and his pinhole studies, "Sylvan Sunshine" and "Autumn Woods."

Such print exhibits as these not only teach much, but serve to perpetuate the friendly relations between clubs, and the courtesy of the members of the California Club who contributed to this exhibition is fully appreciated. It is regretted that several studies, notably a "Coast" sort of picture with a pool, an old tree and a distant church spire with an evening sky, done in an harmonious sepia, and a boat study, are without names of artist or subject. The Chicago Society is about to hold a members' exhibit, from which a judicious selection might be made and sent to the California Club for exhibition before the summer vacation season.

LIFE-SAVING CREW, OCEAN BEACH, SAN FRANCISCO, CAL.

The Diaphragm in Pictorial Photography

By B. F. Loomis

Photograph by the writer

The country in which I live is heavily timbered, and after four years' experience in taking pictures here I have learned one lesson well. I refer to the use of the diaphragm. In an open country, where the light is nearly homogeneous, it may be well to snap at everything, but in a country like this it will not do at all. The heavy timber and the foliage gives great contrast between light and shade, and it is necessary in most instances to use a small diaphragm to bring out the details in the shadows. The snap-shotter in taking pictures here would invariably get intensely black shadows and chalky high lights.

This fact has led me to observe this failing in the photographs made by others, both amateur and professional alike, and to note the causes that led to their failure.

Again, in looking at a series of stereoscopic photographs, all of which are microscopic in their sharpness, have you not been impressed with the clearness and atmosphere of the prints? Of course, a great deal of the atmosphere is due to the stereoscope, but this does not apply to the distance in the pictures, as the relief seldom extends beyond the foreground and middle distance. All makers of stereoscopic pictures use the diaphragm as far as possible and who can say that their results are not pleasing.

The accompanying picture of Viola Park, a very dense undergrowth of small fir trees, illustrates the truth of my theory. This picture was made on a Seeds 26x plate, with the sun under a cloud, using No. 32 stop, and an exposure of 12 seconds.

A Brownie in Chinatown

By Hugo Goldsmith

Illustrated from photographs by the author

As a matter of experiment I recently made a trip through Chinatown in San Francisco with a Brownie camera. The well-known disposition of the Chinaman to run when a camera is pointed his way has caused me to lose many a dozen plates and much of the good humor upon which my reputation for happiness is founded.

AN AERONAUT

In former celebrations I had gone to Chinatown equipped with the very best outfit in my possession, only to return with a lot of useless negatives showing the rear elevations of fleeting Mongolians, dismal streaks across the bright firmament of photographic success. In vain I tried bribery, stealth and persuasion. My stock of Chinatown negatives grew but slowly, and although I tried many different cameras I still had hard luck in getting pictures. The children were the worst behaved of all. No sooner did I point a camera at them than they disappeared, screeching at the top of their queer little voices. Of course, I could have gone to the mission schools and been permitted to photograph Chinese children to my heart's content, but this had little attraction for me. I wanted the little wild children that fled from me in well-simulated horror. As well might I have photographed the farmyard flock when after wild fowl in their native haunts.

A FRIENDLY SERVICE

GOING VISITING

But the Brownie expedition was a happy inspiration. The little Chinese thought that my tiny black cube was only a bluff and allowed me to snap away with only an occasional, well-educated smile of derision. With the little camera there came a feeling of confidence, and I exposed roll after roll of the tiny film. What I had when I developed you see herewith. I am more than pleased with my success, and my advice to all who contemplate making pictures of people who do not want to be photographed is to take a Brownie.

Of course, this advice does not apply to the seeker after royal-sharp pictures or the art photographer who does not believe in chance snap shots. It has long been a question in my mind as to whether or not a photog-

rapher, who makes hundreds of snap shots out of which he selects three or four or maybe a dozen salon pictures, is eligible to the Fellows of the Photo Secession. Of necessity the regular and systematic making of snap shots will sooner or later produce a few good things. Now, in my opinion just as much thought and deliberative art can be used in making a snap shot on the street as when under a skylight and after careful study on the ground glass. I think that a man should be rewarded for what he does and not for what some people think he does.

A YOUTHFUL PRINCE CHARMING

Again, I believe that a man who has studied composition and has the true artistic instincts, can bring to bear on the chance snap shot all of this training and knowledge. You can readily prove this statement to your own satisfaction by remembering the different collections of pictures you have looked over. Some will have a strain of hopeless mediocrity running all through the collection, others will be uniformly good. Is not this latter snap-shotter worthy of being called "pictorial photographer?"

THE MAIDEN'S SORROW

But the picture is, after all, of more importance than the means by which it was obtained. There is no doubt but that some very good things have been produced by accident.

Probably the best photograph ever gotten in Chinatown was made by a local artist. He selected the alley he wished for the setting and then waited four hours for the inhabitants of the quarter to become accustomed to him and his camera. When the Chinamen finally forgot him, he put the camera on top of his head and snapped it. The result is a picture which excites the imagination and suggests the melodramatic life of the Chinese in San Francisco.

REPAIRS

Strangers are sometimes afraid to go into the alleys, which are the most interesting places to take photographs. There is not the least danger. White persons are perfectly safe anywhere in Chinatown.

The Camera as an Educator

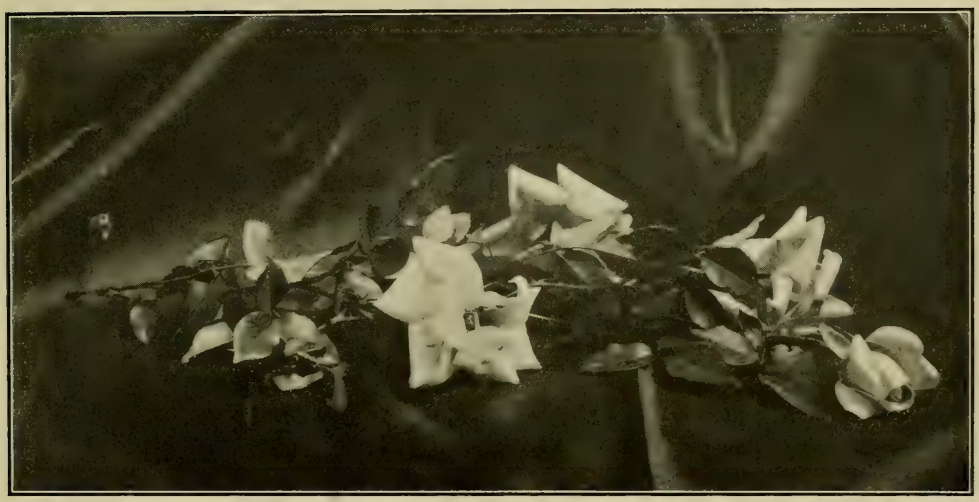
By James B. Carrington

Illustrated by the writer and Belle Johnson

THERE has been a great deal written as to whether Photography is a fine art or not, but apparently without much profit or satisfaction to either side. It certainly takes a very enthusiastic user of a camera to assume for his work, even at its best, anything more than an attempt at the expression of an artistic idea. He can hardly claim any credit as a creator. Indeed, how few artists can in any of the accepted arts. Art has so many phases, however, that this whole question may be left as a matter of opinion.

A good photograph, good in its being something more than a mere negative, is admittedly better than a bad drawing. There seems ample opportunity for the photographer in his own special field without the need of claiming any of the prerogatives of the painter.

One aspect of Photography that presents a wide field of usefulness lies in the direction of its great success in giving exact transcripts of many things that lie beyond all but the most mechanically skilled draughtsman. It has given us new ideals of nature, both of flora and fauna, and of the mysteries of the skies. To the astronomer, the naturalist and the lover of plant life it has been both eyes and pencil.



The artist can generalize his tree forms and flowers and with his color give us a broad impression of a landscape wholly charming. He deals with the spirit of the scene in its totality. When it comes to looking closer into the minute anatomy of natural forms the limitations of the human eye and hand render accurate reproduction practically impossible. No drawing, however careful, ever gives with complete satisfaction the wonderful constructive beauty of a leaf or flower. The old botanies are full of illustrations that bear but little resemblance to the things described, and in all the sciences we owe an inestimable obligation to the camera for its revelations of the truth. Certainly we need not look for any merely abstract reason for the profit and pleasure to be found in Photography. The camera has opened up an en-

tirely new field of study and has made it possible for all of us to become familiar with the more obvious aspects of nature; with the innumerable beauties that she lays so abundantly at our feet, but which the untrained eye and observation heed not. Audubon with his pencil and brush gave us the first real idea of the marvelously varied forms and colors of the animals and birds, and his great work has justly been regarded as one of immense value to science. But a careful inspection of his plates and a comparison with the real birds will reveal many inaccuracies, due not to carelessness or a want of knowledge, but to the limitations of his art. Our nature books are now illustrated with a truth of form and detail that belong to the actual objects. Color printing methods, however, are often to blame for entirely inadequate and false impressions of the things they attempt to reproduce. Most color printing is a compromise and in order to get the general mass of color, details, essential to positive identification, are too often sacrificed.

The photograph in simple black and white, giving exactness of form and a true idea of habitat is often more to be desired than any attempt at color reproduction. A color can be told of, but a word description is nearly always lacking in definiteness and in the power of conveying a realizing sense of form. In the photograph seeing is believing, for we are conscious that there is no other individual point of view between the lens and the sensitive plate.

Every aspect of out-of-doors, sport and travel included, has taken on a new interest since the camera has been made a plaything for all. It has brought to our homes in the crowded city streets a thousand charming transcripts of nature by land and sea, and made the actual, in recent history, as real as if we had ourselves played a part in it.

One need not be a sentimentalist or a patronizer of nature to find an honest pleasure in realizing some of her ways. The day has gone by when these things were the exclusive property of the specialist with a tin box and a bug net. The camera has certainly taught us new ways to observe.

The Joy of a Good Lens

By Wendell G. Corthell

Illustrated by the writer

"It pays to buy a good thing." I found this old maxim true last summer while spending six months in Europe in search of picturesque bits for my camera. A long time I debated whether to take a 4 x 5 stand camera or a No. 3 Folding Pocket Kodak with an anastigmat lens. Having spent two years over there before, I knew the larger camera would often be left at the hotel, especially when I ran across a prize scene, while the compact smaller camera would always be in my hands ready for business. I have not regretted the decision, for I brought home 450 good negatives, many more than would have been taken with a 4 x 5 stand camera. If I spend another winter, especially in Italy, I will take two cameras.

So many tourists come home with a lot of films, wrapped up in which are many high hopes, often, very often, doomed to disappointment and headache, that it was a joy indeed to have a lens that could do good work and result in only one sad under exposure in 450. When I wanted what would have required a long exposure with a cheap lens I never found a support on which to rest the camera. In my hands and against my body the faithful lens had to do its work, and nobly did it meet the tests. I took a slow snap shot of Melrose Abbey at nine o'clock at night and got a fairly good negative.

PALACE OF JUSTICE, BRUSSELS

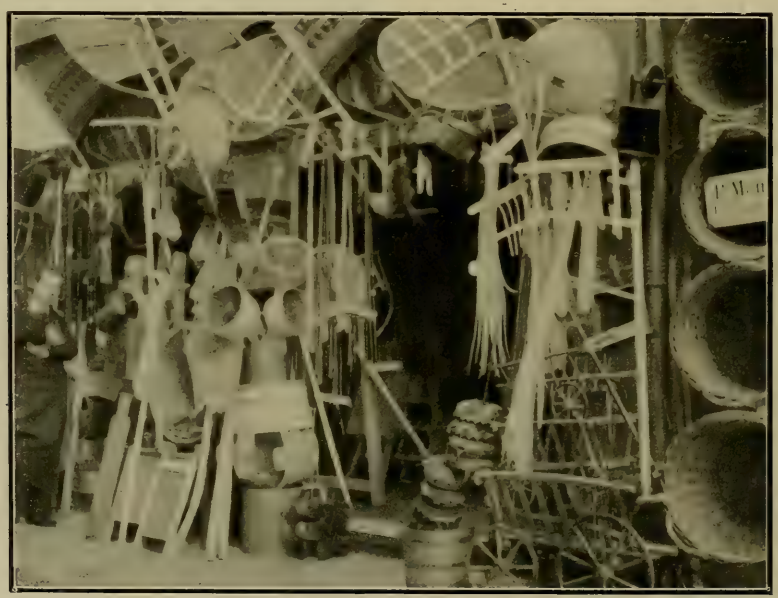
I had some over exposures, but out of the 450 negatives 425 were correct. Many could not have been taken with a cheap lens and shutter. I had a Goerz lens working at *f*/2.9, and an unusually correct Wollensack shutter. I rarely found a condition too difficult to master, rarely had an under exposure. The only failures I had came from developing in wash bowls in hotel chambers. Had the new developing machine been out I should have had no trouble.

Before going I experimented to get the depth of the plane of focus on each stop and setting. I knew, for instance, that when stop 2.9 was set at 19 feet that all between 10 and 25 feet was in focus. When set at 100 feet all beyond 30 feet was in focus. When stop 16 was set at 13 feet all between 6 and 25 feet was in focus; when set at 38 feet all between 10 and 150 feet was in focus.

I never lost a picture when I thought to focus at all. A few times in my haste I left the setting as on the last exposure and spoiled the film.

FOG IN EDINBURGH

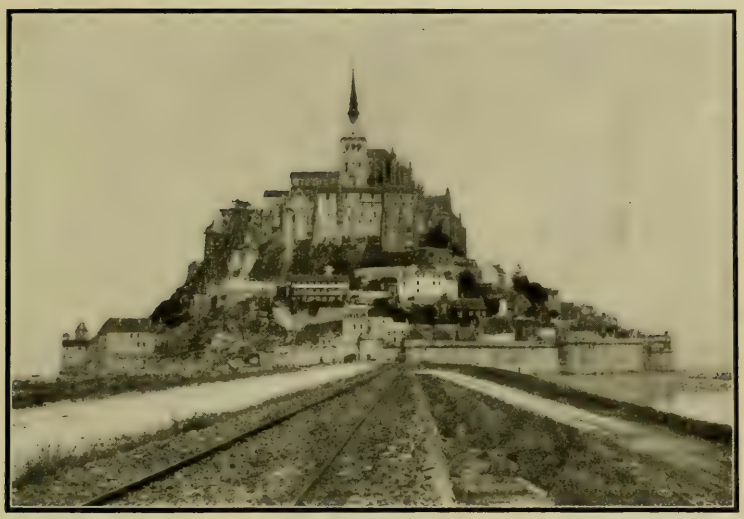
A lens that will do good work in a rainy May in England is worthy of a prize. Every snap shot in that foggy country made a fair negative. I think one-third of my negatives were made beyond the capacity of an ordinary camera. The subjects precluded a tripod, which I usually left at the hotel, and only the excellence of the lens saved the picture. Rainy days were no drawback to a Goerz lens. I worked through thick and thin, even when my companion held the umbrella over the camera. There is a long range between taking a ship on a bright water and a torrent in a



WAITING FOR TRADE, MAYENCE

gorge 500 feet deep. Some were taken in 1-100 of a second at stop 32, and some in one-half of a second at stop 2.9.

The illustrations in this article were taken under conditions which would have been fatal with a cheaper lens. The fog and rain in Edinburgh was taken in one-fifth of a second with lens wide open, so was the shop in Mayence. Here the street



MOUNT ST. MICHEL

was narrow, the buildings high and the subject close at hand, and yet the detail is good. I supposed the interior in the Palace of Justice at Brussels was beyond me. I braced myself against a column, held my breath and gave half a second at stop 2.9.

The Swiss girls in costume in a strong wind were taken with 2.9 in 1-100 of a second. Mount St. Michel is, as we all know, set in the sea. The light was very bright, so I gave 1-100 of a second at 32. It was over exposed, but prints well.

The moral of it all is, if you know how to handle a camera, get the best when you go far away from home. Every advantage that lens and shutter can give will be needed and the results will be invaluable when you come home and sit by your fireside in the winter evenings and again live over the glorious days in the lands that are

OFF FOR A LARK, INTERLAKEN

so replete with picturesque subjects and delightful memories. It has been my good fortune to spend more than three years wandering among the charming scenes of the old world and had I known as much of the camera in the past as now I would have had 3000 instead of 450 negatives. Whether we seek subjects in Europe or America it pays to have the best lens and the most intelligent man behind it that we can afford.

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The Industrial Number

Since the appearance of the April CAMERA CRAFT we have received many letters of congratulation from prominent members of photographic trade circles, and the manner in which the Industrial Number sold in the photographic and news stores is convincing of one fact and that is that the photographic world is ever ready to accept and commend a new and original departure.

The Need of Reform

The annual reports of the officers of the California Camera Club recently submitted contain some very interesting recommendations, some of which are well calculated to stir up internecine strife. However, if these recommendations bear fruit it will do much toward placing the organization upon a much higher plane.

This paragraph is embodied in one of the reports:

> I believe it is for the best interest of the club to take a firm stand on the question of professionalism, and either allow the professionals to use the rooms as much as they desire, or else cut it off altogether. There has been a great deal of complaint recently regarding the use of the rooms for professional work, and some of it justly so. Personally, I favor the professionals, they are all friends of mine, but I feel that for the coming year it would be wise to try to stop all professional work being done in the club-rooms, thereby giving the amateur an opportunity to use the gallery, the bromide and velox rooms, whenever he has the time and inclination to do so, which under the present arrangements, owing to the fact that the rooms are in constant use by certain parties, he feels that he does not have the chance to use them when he has the time. I admit this is a very delicate question, but one that should be met and settled for all time.

This has always been a mooted question in photographic organizations, more so during late years than formerly. Now that the lines between the amateur and the professional have been so closely drawn the amateurs, who outnumber the professionals ten to one, feel that the photographic societies, supposedly organized for their benefit, should debar the professional from using club privileges to excess. On the other hand professional photographers serve their usefulness in club circles by instructing the uninitiated and in many instances by bettering the standard of the

exhibitions. However, the fact remains that the professional photographer is more likely to abuse club privileges than the amateur and therefore some action is made necessary.

Another recommendation has reference to the lax manner in which certain of the committees have performed their work during the past year. This criticism is amply justified when a glance is taken at the year's work. If the truth be told the California Camera Club made little progress during the year 1902.

It is to be hoped that under the new President and Executive Committee matters will improve.

Strauss vs. Stieglitz

Camera Craft is in receipt of the correspondence between Mr. Julius Strauss of St. Louis, and Mr. Alfred Stieglitz of New York, with reference to the standing of Photography at the World's Fair to be held in St. Louis. The communications are somewhat lengthy, the gist of the matter being the defense of Mr. Strauss against a somewhat severe stricture in *Camera Work*. We think that Mr. Stieglitz was unnecessarily harsh in his comments upon the action of Mr. Strauss, who undoubtedly acted in the best of faith in urging the claims of Photography upon the managers of the St. Louis Exposition. However, useless discussion of the pros and cons of the matter will not improve the standing of Photography in the eyes of the World's Fair management or of the public. We believe that Photography will receive just treatment at St. Louis in 1904 and although this feeling is not based on any very substantial assurance from the exposition authorities, it is firm enough to warrant us in saying that any further discussion as to who deserves the credit will not help matters any.

IN SYLVAN DELLS BY H. L. KAISER

A Photographic Digest

By Dr. H. D'Arcy Power

Color Filters

In the article on color photography last month I drew attention to the work of Dr. Miethe, whose portrait studies in color are well known. In a recent communication Dr. Miethe gives instructions as to the preparation of the light filters. For this purpose he advises dry filters made of plate glass, not placed in or near the lens, but in contact with the plate or film.

The red and green filters are preferably made by cementing two stained films together, so that if necessary adjustment of the absorption may be readily made. An 8 or 10 per cent solution of gelatine should be used, and of course as clear a sample as possible should be obtained. For the red filter Miethe chooses rose bengal, one of the eosine group of dyes, and combines it with tartrazine, a yellow dye. For 80 square centimeters of surface from 9 to 10 c.c.m. of a mixture of 1.5 c.c.m. of a 2 per cent solution of rose bengal and 18 to 20 c.c.m. of gelatine solution are used; the yellow screen for combination with this is made by mixing a 4 per cent solution of tartrazine with the gelatine solution and coating another sheet of glass with the mixture. When dry, this screen should absorb all the violet, blue and green up to n 590, which is of course practically the D or sodium lines. It is important to note that the absorption of the wet filters is not the same as when dry. The green filter, for the same area of surface, 6 c.c.m. gelatine solution are mixed with 1.6 c.c.m. of brilliant acid green VI. B solution 1:100, and from 4 to 8 drops of a 1:25 tartrazine solution should be added. This filter should transmit light from n 589 to n 490, that is from D to nearly F. The blue filter, for the same area, 13 c.c.m. of gelatine solution, 2 c.c.m. new Victoria blue solution, and 2 c.c.m. methyl violet solution,* each 1:250. These filters are suitable for the ethyl red* sensitized plate, and in order to make the exposure for the blue filter as long as that with the red a cover glass of 120 c.c.m. gelatine solution and 5 or 6 drops of a 1:25 tartrazine solution are cemented to this blue filter; the idea being that errors in exposure with the blue filter are not so liable to occur if this damping yellow cover glass be used.

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*The ethyl red which Dr. Miethe has used with such success is used as a plate bath at a strength of 1:50,000 or as 0.016 grammes to the litre of emulsion.

Three-Color Printing

Any of our readers who think of taking up three-color printing commercially should read the lecture thereon by Harvey Dalziel to the Society of Arts and reproduced in the journal of the society, and also in the *British Journal of Photography* of March 13th. Written by a practical printer employing the process on a large scale, it is an able exposition of the merits and difficulties of the three-color printing as compared with photo-lithography.

Platinotype Prints from Engravings

I have to copy some engravings and make prints on platinotype papers. If I make the negatives dense I cannot print out the fine lines, and if I make them thin, either the lines are not black or the whites are gray.

Is there any special method of working?

From a practical point of view it is almost impossible to make perfect negatives of line subjects on dry plates. The wet collodion process should be employed for the work. As that may not be possible in the present instance, the next best thing is to use a photomechanical plate. A plate coated with lantern slide emulsion also gives good results. The light employed in making the exposure should be intense; the electric arc or the light from burning magnesium ribbon is excellent for the purpose. As in most other photographic work, correct exposure overcomes many difficulties, and it is best found by repeated trials. Either hydroquinone or glycin may be used, but the caustic alkalies ought not to be employed. A trace of potassium bromide, say half a grain to the ounce, will do no harm, but there is no advantage, but rather the reverse, in using a large proportion. As the plates are very slow, plenty of light may be used in the darkroom, but the plate should be developed as nearly as possible in darkness by covering the dish over.

Development should cease before the first signs of fog appear, and this is best arrived at by adopting the time method of development after making one or two trial exposures. Any attempt to secure full printing density by development alone will almost certainly result in the fine lines being choked up. If the plate is fixed before this takes place the negative will be lacking in density, but the lines will be approximately clear and the whites can be strengthened by intensification. For this purpose, Eder and Toth's lead intensifier is one of the best. After fixation the plate is to be well washed, and then bleached in potassium ferricyanide six parts, lead nitrate four parts, acetic acid ten parts, and distilled water one hundred parts. One or two baths of a 10 per cent solution of nitric acid should be given to the negative to clear it of the lead salts. and it must then be well washed. At this stage the film is so exceedingly tender that it is impossible to brush off from it any grit that may have settled—a plain hint that all solutions must be filtered. To blacken the image ammonium sulphide is commonly used; the smell is particularly offensive, and the comparatively odorless sodium sulphide should be used in preference. The operation, if necessary, may be repeated, but in cases where it is suspected that double intensification will have to be resorted to it will be wise to remove the veil that is present in the best of negatives with a bath of dilute potassium cyanide before the first bleaching takes place. As the prints are to be on platinotype paper, the addition of a small proportion of potassium bichromate to the oxalate developing bath will help to secure pure whites. It may, indeed, prevent the finer lines from developing. If such should be the case, the developing bath may be made up as follows, substituting ammonium persulphate for the potassium bichromate: To every 4 parts of a saturated solution of potassium oxalate add 1 part of a 5 per cent solution of ammonium persulphate in 7 parts of distilled water. The proportion of ammonium persulphate may be increased till equal parts of it, the distilled water and the saturated solution of potassium oxalate, are taken.—*Photography.*

Wanted—An Isochromatic Film

Why do we not have an isochromatic film? The use of films for serious work is everywhere on the increase; but so long as advanced workers are confined to the sole form obtainable here they will bear with the weight and inconvenience of plates. I notice that the English Cristoid film is now obtainable in isochromatic form, and knowing by experience the excellence of this all-gelatine film, one cannot but regret a tariff arrangement that benefits no one but the existing monopoly and compels Americans to work on a lower plain of efficiency than their European fellows.

Control of Over Exposure

The old controversy as to how much latitude is possible in the correction of faulty exposure by restrained development receives an affirmative contribution from the experiments of Dr. Eder reported in the *Photographische Correspondenz.* The results obtained indicate that very great over exposure may be compensated by the use of a weak developer (preferably pyro soda) restrained with very large quantities of potassium bromide; quantities as high as from 1 to 10 per cent of the total developer being used.

Quick Drying of Negatives

Mr. G. T. Harris, in *Photography,* gives the following details of what I have personally tested and found to be a very valuable method of rapidly drying negatives.

Put any suitable quantity (of "mineralized spirit," which I believe is the same as our Columbian spirit) say 10 ounces, in a wide-mouthed bottle, and add 1½ ounces of methylated sulphuric ether and 1 ounce of anhydrous potassium carbonate; a like quantity is made up and kept in a second bottle. The negative to be dried is well drained from the washing water, and all superfluous moisture removed from its surface by a soft squeege or piece of fluffless drying board. It is then placed for some two or three minutes in a tray containing the mixture of alcohol and ether, well drained from the first alcohol bath, and placed for two or three minutes in the second. After wiping the alcohol from the surface with a clean linen handkerchief, it is usually perfectly dry; or if not, it is so nearly dry that a minute or two in front of a moderate fire will suffice to complete the desiccation. The two alcohol baths should be numbered 1 and 2, and not used indiscriminately, otherwise the efficacy of the second bath will be quickly impaired.

A watchful eye should be kept on the potassium carbonate, and when it shows signs of becoming saturated with moisture, the spirit should be poured off for the time be-

ing, and the carbonate dried; or, what is better, a fresh quantity added.

Although the written details may give the operation a cumbersome and inexpeditious look, in practice the method is simple and quick, if attention be given to ridding the negative of any extraneous water before commencing operations. I have frequently dried 12 x 10 and 15 x 12 negatives with spirit in less than five minutes—a sufficiently short length of time for all practical purposes.

Technique of Gum Printing

M. A. Sanchez, writing in *L'Avenir Photographique,* gives some details of his method of procedure that are worth abstracting. The author comments on the fact that the best-known writers are content to leave the new worker to find his proportion of gum, bichromate and pigment by a system of trial and error, and avers that the only reason for following such an unsatisfactory system is due to the need of a special relation of the three constituents for each tint, a relation that the previous writers have not worked out. The formulæ given by M. Sanchez he avers to be the result of "hundreds of experiments, and in all that concerns the proportions, rigorously exact; they having been determined by the aid of a chemical balance working to half a milligram."

BLACK

Lamp black	0.60	grams
Red ochre	0.25	grams
Indigo	0.10	grams
Bichromate solution	3	c. m.
Gum solution	5	c. m.
Glycerin	3	drops
Hydrochloric acid	2	drops

MARROON

Lamp black	0.60	grams
Red ochre	0.55	grams
Indigo	0.15	grams
Bichromate solution	5	c. m.
Gum solution	5	c. m.
Glycerin	3	drops
Hydrochloric acid	2	drops

BISTRE

Bistre	1.50	grams
Bichromate solution	5	c. m.
Gum solution	5	c. m.
Glycerin	3	drops
Hydrochloric acid	2	drops

RED "SANQUINE"

Lamp black	0.05	grams
Red ochre	0.95	grams
Bichromate solution	4	c. m.
Gum solution	6	c. m.
Glycerin	3	drops
Hydrochloric acid	2	drops

BURNT SIENNA

Burnt sienna	1.25	grams
Bichromate solution	4	c. m.
Gum solution	6	c. m.
Glycerin	3	drops
Hydrochloric acid	2	drops

RAW UMBER

Raw umber	2	grams
Bichromate solution	5	c. m.
Gum solution	5	c. m.
Glycerin	3	drops
Hydrochloric acid	2	drops

SEPIA

Sepia	1	gram
Bichromate solution	5	c. m.
Gum solution	5	drops*
Glycerin	3	drops
Hydrochloric acid	2	drops

*This is probably a typographical error, 5 c. m. being intended.

BLUE

Indigo	1	gram
Bichromate solution	6	c. m.
Gum solution	5	c. m.
Glycerin	3	drops
Hydrochloric acid	2	drops

GRAY

Payne's gray	1	gram
Bichromate solution	4	c. m.
Gum solution	6	c. m.
Glycerin	3	drops
Hydrochloric acid	2	drops

The pigment used is tube colors; the gum solution a 35 per cent solution of Senegal gum, the older the better; the bichromate solution is a 10 per cent solution of the ammonium salt. The glycerin is added to better preserve the half-tone, and the hydrochloric acid to increase the insolubility of the deposit for brush development. The author does not use it in summer.

Two grams of mixture is said to exactly cover a surface of 18 x 24 c. m., and the above formulæ will cover five of such. In coating the paper rapidity is essential, and two minutes the outside limit. Development is effected by first removing the bichromate by soaking in several changes of cold water and then placing in a bath the temperature of which is raised to the point of permitting the appearance of the image, going as high as the boiling point if necessary.—*Translated from the Bulletin Assoc. Belge-Phot.*

Colors by Moonlight

Sir William Abney writes a most interesting contribution to *Photography* on the above subject. The writer shows that moonlight having only one-six hundred thousandth the illuminating power of sunlight, the peculiarities of moonlight effects are chiefly attributa-

ble to the low illumination. By a series of ingenious experiments it is demonstrated that when the complex light of the sun is reduced in intensity below a certain point, the red rays disappear, and the green rays become grayish. In moonlight the condition is the same, the red is absent, permitting the greenish gray to predominate. This demonstration has an important bearing on the art of the painter, but it is not without application in Photography. Lantern slides are now frequently produced by the Lumiere or Sanger-Shepherd three-color process. These are taken in daylight. Sir William Abney states that if a piece of pale peacock green glass is placed behind such a slide the red rays will be absorbed and the effect produced will closely simulate a moonlight picture. Even an ordinary lantern slide is said to gain much of a moonlight appearance if backed by such a color screen.

Flat Negatives

The *British Journal of Photography* in a recent editorial calls attention to the fact that flat negatives are often due to a cause easily overlooked, namely, to the diffusion of light in the camera from dust, not only in the bellows, but also on the surface of the lens or its mount. There is no doubt but that this warning is greatly needed, especially by busy workers who are apt to overlook the condition of their apparatus. That all inside of a camera should be dead black and not gray cannot be too well insisted on.

A Printing-Out Bromide Paper

This is what is promised us by M. M. A. and G. Foucant in the *Bull. Soc. Franc. Phot.* for February. These gentlemen claim to have discovered an isomeric form of silver bromide by means of the action of a substance new to chemistry. Neither the name of this substance or any details of its method of employment are given, but the paper contains a lengthy statement of the universal properties of the new silver bromide, which if obtainable at the ordinary cost should make it a valuable acquisition to Photography.

Some Experiments With Chloride Plates

The development of gelatino-chloride lantern plates forms the subject of an interesting article by Dr. Konig in *Photographische Correspondenz*. It appears that there is some uncertainty as to which developer it is best to employ for use with such plates. A mixture of pyrogallol and sulphite gives various colored pictures; for example, a one per cent aqueous solution of pyro will give a thin greenish-brown color. On the addition of two per cent of sodium phosphate, the picture is made somewhat denser and of a greenish black tone. Sodium sulphite causes the tone to be much browner, the image much more brilliant, and on increasing the amount of sulphite it will be found that the color of the image changes through violet-brown to violet. In these cases no alkali is used, and in a similar manner it has been found that amidol, diamidoresorcin and several other reagents are capable of producing corresponding results.

Liesegang has stated that any substance which will develop silver gelatino-bromide in the absence of an alkali may be used in the form of an acid salt for silver chloride. It certainly seems, according to Konig's experiments, that practically all developers may be used with a little sulphite in this way, as besides pyro, hydroquinone adurol and many other agents have been tried with more or less success.

A good developer to experiment with is suggested thus: Pyro 15 grains, sodium sulphite (anhydrous) 60 grains, water about 1 pint. A little common salt is added to this. It will give a variety of colors upon development, though the tone changes during the drying, so that the final color cannot be altogether gauged from the appearance of the plates when wet. The dishes used will very soon become covered with a layer of metallic silver, due to the reduction of the chloride. This is extremely interesting, as it would be supposed that the silver chloride would all be dissolved in the sulphite solution. Such, however, appears not to be the case, and the solvent action of the sulphite is therefore repressed by the presence of the chloride or the salt of the other acid (which must be present).

A silver chloride plate fixes out in about fifteen minutes in 3 per cent sulphite solution, but when 1 per cent of salt is present fixation takes about two hours.

It may interest our readers to tabulate two of Dr. Konig's experiments in this direction. Three grammes of silver chloride were treated with (A) six grammes of sulphite in 200 of water, and (B) six grammes of sulphite, one of salt, and 200 of water. After a given time

the solutions were filtered and tested, giving the following results:

A

Silver chloride (undissolved)..2.00 grms.
Silver chloride (dissolved).... .98 grm.

B

Silver chloride (undissolved)..2.58 grms.
Silver chloride (dissolved).... .44 grm.

What we learn from these results may be summed up as follows: Silver chloride plates if worked only with the developing substance + sulphite, give more satisfactory results than if an ordinary developer be used, and development is quicker, and, further, a great variety of pleasing tones can be obtained with just the developing agent, sulphite and salt.

Ammonio-Potassium Chromate and Its Photographic Uses

This is a neutral double salt of potassium chromate and ammonium chromate, which can be produced by treating potassium bichromate with ammonia. To do this a quantity of chemically pure potassium bichromate is introduced into a strong flask, and the strongest ammonia is added, with constant agitation, until the smell of ammonia indicates that it is in excess. When this is the case the flask is closed, placed in a water bath, and heated until its contents have entirely dissolved, forming a yellow solution. This is allowed to get cold, when a quantity of stray-colored needle-shaped crystals of the double salt will be deposited. If these are removed and dried under a receiver they will be found to contain no water, and to possess the composition of K2CrO4,NH4,HCrO4. Left for any length of time in contact with the atmosphere this salt loses ammonia and gradually assumes an orange color. Heated slowly it will lose all its ammonia, potassium bichromate being left. In solution, heat causes this double salt to undergo a similar decomposition.

This tendency to decompose by heat, together with the fact that if light be excluded the salt has no decomposing or oxidizing action upon organic substances, says Herr Kopp, who has paid much attention to it, makes it likely to play an important part in those photographic operations in which organic substances and a chromate are employed.

By using a fairly strong solution of the salt, paper can be prepared which will keep for a considerable time without change. It remains yellow, and if kept quite dry only turns an orange red after the lapse of a long period. On the other hand, this paper, if exposed to daylight, will turn very quickly to a deep strong brown so that a print can easily be made on it. If a print so produced is placed in pure water, or in water acidified with a few drops of acid, the yellow color of its background is soon lost, and a vigorous brown print with perfectly clean whites is the result. The washing, however, must only be continued until the lights become white, and then stopped. The chemical change which takes place when a print is formed in this manner may be thus described: The action of the light, analogous to that of heat, in the presence of organic substances causes the double salt to lose ammonia. The salt consequently becomes acid from the liberation of chromic acid; this chromic acid acts upon the organic substance oxidizing it, and reduces itself to chromium superoxide. If the washing is continued this is further decomposed, and chromium hydroxide, a pale green substance, results.

Both the brown image, which is obtained when the washing is stopped at the stage already described, and the pale green image of chromium hydroxide which will be left if the washing is carried much further, can be acted upon by certain reagents, with the result that the image is intensified, and colored pictures which possess plenty of vigor and permanence will result.

Squeeging Gelatine Prints

The pages of *Photography* have quite recently been occupied by a number of interesting letters on how to prevent the sticking of squeeged prints. One printer most truly says that if you avoid long soaking of the prints, place them in a 5 per cent bath of formalin squeeging, and do not attempt to strip them from the ferrotype plate until bone dry, sticking will never occur. A second writer suggests that the formalin be added to the toning bath. This may be done, but the worker must remember that the tone will be changed to a blacker shade, and experiment has shown that to remove the hpyo a much longer washing is necessary. A third writer follows the first in the use of the formalin bath, but prefers a well surfaced glass plate (such as an old negative, carefully polished with French chalk), to the ferrotype plate, and he maintains that this improves with use, which certainly is not the case with ferrotype. My own experience has convinced me that the secret of success is in the use of formalin bath plus patience in giving the prints time to properly dry.

The Amateur and His Troubles

By Fayette J. Clute

Saving Silver Wastes

One of my Oregon correspondents asks if it is worth while trying to save the residues in the shape of silver removed in the fixing baths. It certainly does not pay. I figured it all out for myself several years ago. I was using four by five plates at the time and found that each plate contained originally just about one grain of silver. I doubted this at the time, but a little later read where a well-known experimentalist on the other side had obtained the same result. This being so, one dozen plates would contain twelve grains. A gross would contain 144 grains. Allowing the odd forty-four grains to remain as forming the image and supposing we may recover the entire 100 grains not so used, it will be seen that after deducting the refiner's charges there is little profit at the present price of silver. At say, sixty-five cents an ounce, we would be entitled to fifteen cents, less the refiner's charges. The present day papers would show even a less encouraging set of figures. Of course, if one is using some form of a permanent fixing bath which finally becomes well charged with silver, and desires to do a little experimenting, the small button of metalic silver may repay him in knowledge gained for the trouble, but it will never pay from a financial point of view. The time and trouble can be much better spent in a thousand other ways.

Impure Mounts

I listened to a friend talk the other day about the quantity of hypo and other injurious chemicals that could be found in other than the purest stock made specially for the purpose of photographic mounts. He displayed quite a knowledge of the chemical side of paper making or at least gave the impression that he understood the matter thoroughly. On the other hand, I believe he was setting up windmills as his own private tilting partners. I will describe a little experiment I saw made some months ago. An ordinary mount was liberally sprinkled with a regular fixing solution, one ounce of hypo in four ounces of water. This was, of course, allowed to dry, but an ordinary gelatine-chloride print was mounted directly upon the same side of the mount. The print today, nearly nine months later, shows no deterioration. When a print goes wrong within a few months it is at once blamed upon the mount. I think we should look elsewhere. I believe hypo is supposed to be the most dangerous impurity. As I understand the matter, hypo is employed in paper making as a bleach. For this reason it is used only in the production of white stock. Even in that case it is hardly possible that it should be in as strong a solution or so much on the surface as in the experiment described. That injurious results did not follow is hardly to be wondered at when we remember that a sheet of thick paper and the well nigh impervious baryta coating intervenes between the mount and the gelatine film carrying the silver image. I think a good generous supply of pernicious chemicals would be required to injure the print from the under side.

Spoilt Bromide Paper

A correspondent in New York has fallen heir to a large supply of old, partially light-fogged bromide paper, and writes to ask what treatment he should give it before employing it as a paper to be coated with the ordinary blue-print solution. All that is required is an immersion in an ordinary fixing bath, well washing and drying. While on the subject I would like to ask my correspondent to try the following, given in the *Photo Wochenblat*, as a method of restoring just such paper. Immerse the sheets in a two per cent solution of mercuric chloride for fifteen minutes, well wash and dry. The exposure will require about thirty minutes by daylight for contact printing. This treatment, it is claimed, will give brilliant results from old or light-fogged paper.

Setting Off a Shutter

Years ago I invested in about forty feet of rubber tubing in order to allow myself to be included in the various group pictures that I was so reckless as to always be making. When I did not get any kinks in the thing it seemed to work all right, but required a good deal of spotting out in the print. Later I tried to catch some young birds feeding in a

tree by setting up the camera close to the nest with my forty feet of tubing reaching to the ground. The shutter failed to go off and I found the tubing had so deteriorated that each pressure of the bulb simply made a new rupture as the last one was mended. I do the thing different now. I tie a small stone to the release with a short piece of thread. I place the stone on the camera bed or elsewhere in such a way that if it be allowed to fall its weight comes upon the thread, setting off the shutter. It is then an easy matter to attach a long piece of thread to this small stone, when a short jerk causes the weight to fall and release the shutter. The thread requires no spotting out.

The Solubility of Chemicals

There is one little matter connected with the simple process of dissolving a chemical in water that is not understood as well as it might be or perhaps should. You can take chloride of sodium or common table salt, whichever you care to call it, and increasing the temperature of the water only increases the amount that can be dissolved—but a trifle. An infinitesimal amount only for each several degrees of increase in temperature. Our old friend, hypo, on the other hand, responds promptly to each additional degree of heat, doing so in direct proportion to the increase in temperature up to the boiling point. Perhaps our next most common chemical, sodium sulphite, behaves differently from either of the former. Up to a certain temperature the solubility increases in much the same ratio as is the case with hypo, but passing a certain point in the increase of temperature the solubility decreases, falling slowly until the boiling point is reached. A diagram showing these different behaviors of various chemicals would be instructive.

The Charges Against Pyro

First, let me say I am not tied down to pyro. I have used and am using several of the new developers. Edinol just at present is a great favorite of mine. It is a most excellent developer. Returning to pyro; the objections urged against it by the amateurs who have joined the ranks but recently are as follows: It stains the hands and plates; it does not keep in solution, and a fresh solution must be used for each plate. We will take these objections in their order. I have developed gaslight papers and secured the best of blacks with no suspicion of yellow in the print and used pyro to do it. It is needless to say that I could do the same thing much easier using plates instead of paper. I simply add metabisulphite of potassium, grain for grain to the pyro stock solution. I do not do it because I like the printing qualities the slight yellow or amber tone gives me. Prepared as above I have kept stock solutions of pyro for over six months and found it a pale orange color at the end of that time. In ordinary practice I use the same solution for plate after plate until development becomes too slow or an under-exposed plate requires a fresh supply. Fully-timed negatives, under consideration, I often develop six, eight or ten before pouring out a new portion. This story of requiring a new solution for each plate has been given wide circulation through the advertisements of newer developers. There is no foundation or fact for such a statement.

Timing Your Exposures

I wish you would all get a dozen of the slower brand of plates and learn what a thoroughly good negative is. Load your holders and go out and make a few time exposures. Learn something about the relative time of exposure required for different subjects. Cramer's Banner brand is a plate that will surprise you as to results. With time exposures on a slower plate you learn to distinguish slight shades of differences in timing or variations from the correct exposure while at the same time you acquire confidence in your power to produce good negatives from plates whose exposure has not been just exactly right. What you learn about the relative exposures required will also stand you in good stead when you come to again use your fast plates and shutter exposures. Learning Photography with a fast plate is like learning horsemanship on the back of a colt; there is danger of too much action.

Retouching

The East Publishing Company of Washington, D. C., is accountable for a most practical little manual on the subject of retouching that is sent postpaid for fifteen cents. Mr. Vincente, the author, certainly understands the subject and what is more to the point, knows how to impart the information to others through the medium of the printed page. Specially made illustrations show the various stages through which the work proceeds from the unretouched negative to the

finished portrait. The book, "Artistic Retouching," should be in the hands of every one making even an occasional portrait negative.

A New Book

I have on several previous occasions advised my readers of the value of the information found in the various catalogues, booklets and the like issued by the manufacturers. In a new book, handsomely bound and printed on good paper, Mr. T. Smith Baldwin has collected the best of this matter and carefully arranged it in some twenty-five chapters. Mr. Baldwin's selection is good in the chapter on portraiture where is shown reproductions of photographs made in an ordinary room in connection with other half-tones showing the arrangement of the screen, curtains and background at the time the portraits were made. The value of this object lesson will be readily understood by all who have tried to follow printed instructions alone in this work. The high grade of the full-page illustrations, some of them being reproductions of wash drawings, suggest the prodigality of the railroad advertiser. The price is only one dollar and twenty-five cents. F. J. Drake & Co., Chicago.

A Fixing Trough Wrinkle

Those who use a permanent fixing trough (especially if made of wood) are constantly annoyed with the solution passing by capillary attraction over the edge of the trough and crystalizing on the outside. A writer in the *English Amateur Photographer* describes a simple cure for this annoyance, namely, coat the edge of the bath with melted parafine. This repels instead of attracting the hypo solution.

New Speed List

Mr. Henry Wenzel, Jr., American agent for the Wynne Infallible Exposure Meter, has revised the list of American plate speeds as follows:

American plate	*f*-78
Ansco film	*f*-90
Carbutt's B. 16	*f*-20
Carbutt's B. 20	*f*-28
Carbutt's Ortho portrait S. 23	*f*-32
Carbutt's Polychromatic	*f*-64
Carbutt's Negative film S. 27	*f*-78
Carbutt's Ortho portrait S. 27	*f*-78
Carbutt's Eclipse	*f*-78
Carbutt's Eclipse Junior	*f*-78
Cramer's single and double coated plates:	
Contrast	*f*-32
Slow Iso	*f*-39
Red Sensitive	*f*
Anchor	*f*-78
Non-Halation	*f*-78
Medium Iso	*f*-78
Banner X	*f*-90
Instant Iso	*f*-90
Crown	*f*-111
Eastman's Ordinary film	*f*-90
Eastman's Non-Curling film	*f*-90
Eastman's "Kodoid Plate" film	*f*-90
Eastman's extra rapid plate	*f*-111
Forbes' L plate	*f*-23
Forbes' S. & S. Ortho	*f*-78
Hammer's plain and ortho plates:	
Slow	*f*-45
Fast	*f*-78
Extra fast	*f*-90
Aurora Non-Halation	*f*-90
Special (red label)	*f*-111
New Record Ortho	*f*-78
New Record extra rapid	*f*-90
R. O. C. plate	*f*-78
Rotograph Negative Paper, fast	*f*-56
Seed's plain and ortho plates:	
S. 23	*f*-78
S. 26	*f*-90
Non-Halation	*f*-90
S. 26x	*f*-111
S. 27	*f*-111
Standard Extra	*f*-90
Standard Orthonon	*f*-90
Standard Imperial portrait	*f*-111
Stanley's S. 50	*f*-111

Mr. Wenzel deserves the thanks of all American photographers for his work.

"What Taylor Taught Me"

It will pay you to send for the little booklet of the Voigtlænder Optical Company on "What Taylor Taught Me," a novel treatment of a subject which baffles many amateurs. Taylor is a mine of information on flatness of field, astigmatism, speed and color correction and the many other points of the modern anastigmat. The subjects are treated in a way which appeal to the merest novice and once taken up will not be laid away till finished.

Copies of the little booklet may be obtained of the Voigtlænder Optical Company, 137 West Twenty-third street, New York, as well as their general catalog of Collinears, now ready.

Notes and Comment

Perfec-Stereographs

CAMERA CRAFT acknowledges with pleasure its receipt of a box of Perfec-stereographs from the H. C. White Company of North Bennington, Vt. The pictures comprise the best collection of stereographs it has ever been our pleasure to see, every feature of the work being carried out in such a manner as to more than warrant the makers in naming them perfect. The fine detail, the natural tone of the photographic paper used and the uniformly perfect work indicate a new system whereby a large portion of the work is done by machinery, as it is hardly possible that such pictures showing absolutely no variation in their perfection could be produced by hand work exclusively.

We congratulate the makers upon the great progress shown by them.

Removal Notice

The Prosch Manufacturing Company announces its removal on May 1st from 389 Broome street to new and larger quarters at 145 to 151 West Eighteenth street, New York city. This company has been located at the old address throughout the past seventeen years, and during that time it has placed on the market several of the most successful photographic shutters and magnesium flash lamps ever offered to photographers. These include the original Prosch shutter, the Duplex and the later models, the Triplex, Athlete, Triplex-Stereoscopic, Athlete-Triplex and the new Diaplane shutters, as well as the Lightning, Professional and the new Proschlite Storage Flash Lamps. These products will now be manufactured on a much larger scale.

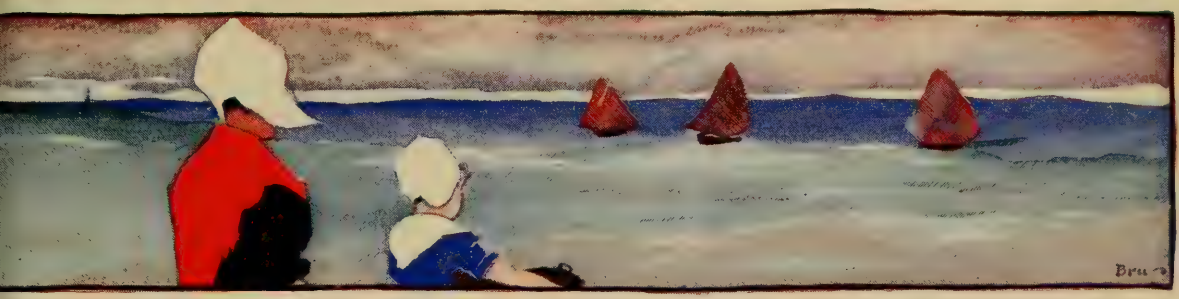
The Prosch Products

The new Prosch shutter for 1903 is called the "Diaplane," and it is made in two styles, one called "Diaplane I," specially adapted for hand cameras and for the use of ordinary amateurs, and the other called the "Diaplane II," which is intended for the most exacting work that the professional or advanced amateur may be called upon to do. The "Diaplane I" has a speed ranging from time and bulb and slow instantaneous exposures to 1-200 of a second, which makes it suitable for the most rapid as well as the slowest work the average amateur may wish to do. This style is made in six sizes from No. 1 to No. 6, and ranges in price from $17 to $22. The "Diaplane II" has a range of speed from time and bulb and slow instantaneous exposures to 1-600 of a second, and is the most perfect, the most widely serviceable, the most durable and reliable, and simplest shutter ever placed on the market for the professional. It is built strong and powerful for the most severe tests that his work in all parts of the world will give it. It is made in sizes ranging upward from No. 3 and ranges in price from $25 upward.

The Basis of Judgment

Bausch & Lomb Optical Company, Rochester, N. Y., advise us that there seems to be some misunderstanding among those who would like to enter their three thousand dollar quarter century photographic competition, with regard to the basis of judging, as to whether the awards will be made to those whose work corresponds with their own particular ideas of photographic excellence, or with those laid down in the basis of judging adopted at the time of issuing the original offer, and which are embodied in a booklet that can be had by any one desiring to enter the competition, on request. The Bausch & Lomb Optical Company wish to state that as this competition is one intended to demonstrate the photographic possibilities of high-grade lenses, it was thought best to adopt at the outset a basis of judging which would give the competitors, not only an idea of what was aimed at in establishing the competition, but the basis upon which prints would be judged, and this basis will be strictly adhered to by the judges in making their awards.

CAMERA CRAFT



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BY ARTHUR C. PILLSBURY

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

VOL. VII SAN FRANCISCO, CALIFORNIA, JUNE, 1903 NO. 2

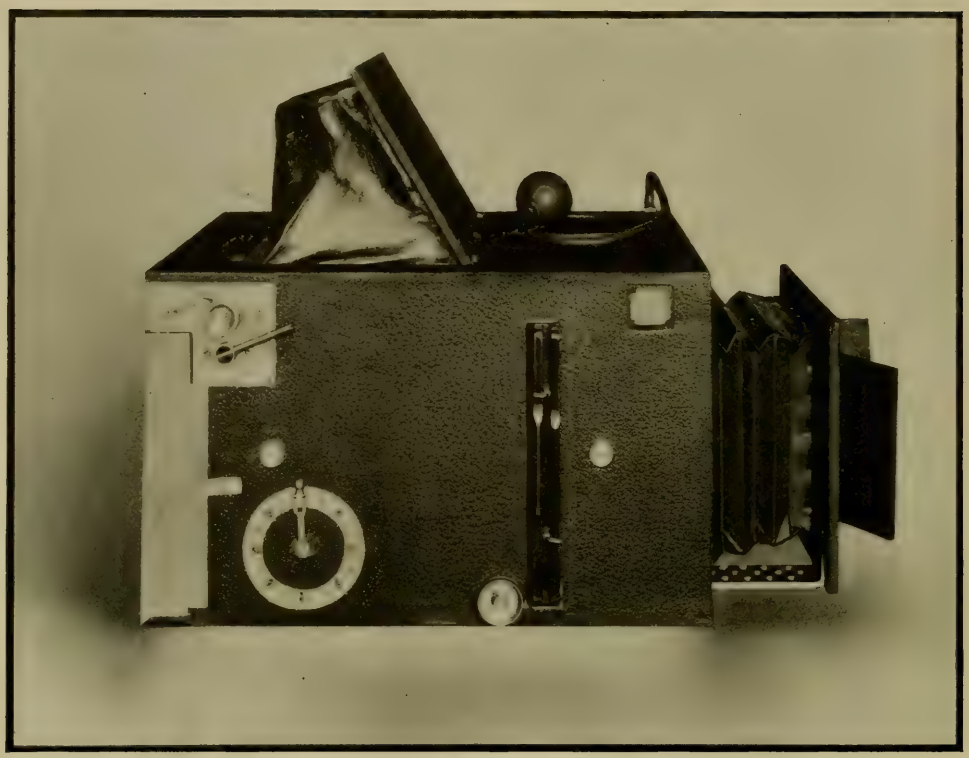
An All-Round Newspaper Camera

By ARTHUR C. PILLSBURY

The photographs accompanying this article were made with the new camera and are reproduced by permission of W. R. Hearst. Mr. Pillsbury is chief photographer on the staff of the San Francisco "Examiner," and we present the description of his instrument, believing it to be a most important advance in the interesting branch of Photography, press illustration.—EDITOR.

When the city editor says: "Now we want about three or four big, fine heads and some general scenes showing lots of people with plenty of action, and, if you get a chance, make several interiors," he doesn't pause to reflect that he has given the newspaper photographer work that will necessitate the use of two or three different photographic outfits, any one of which is an ample load for the average man. The

THE FINISH—1-1000 OF A SECOND



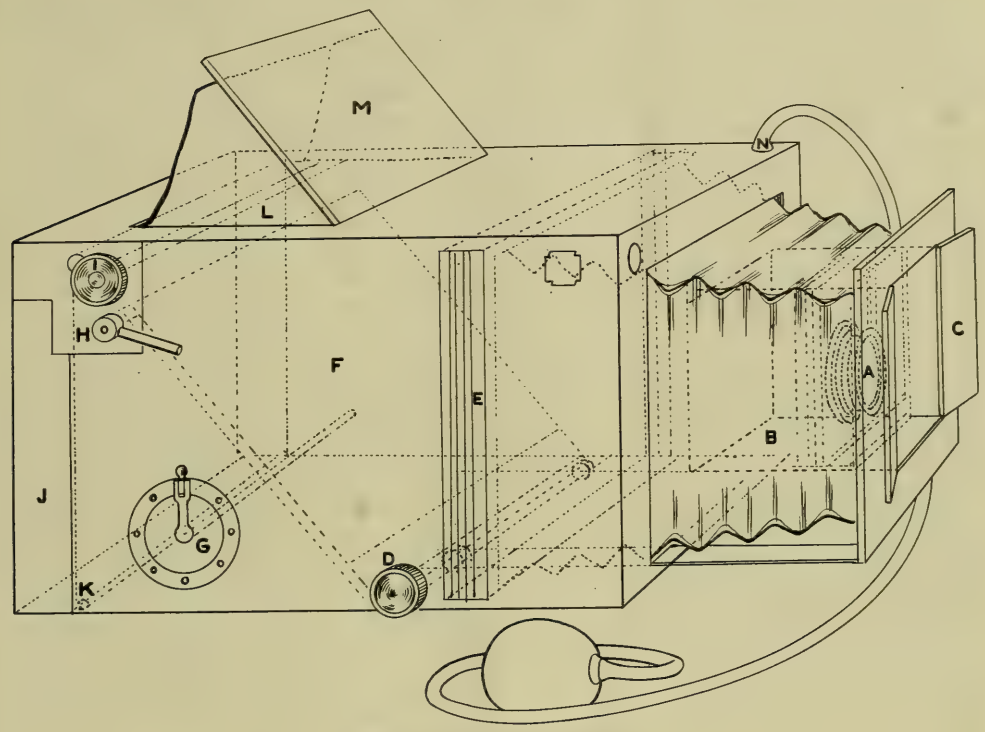
THE CAMERA OPEN AND READY FOR WIDE-ANGLE OR TRIPOD WORK

city editor wants results, likewise the photographer wants results. Hence he packs around with him enough apparatus to fit out a first-class studio when he goes to cover an important assignment.

For fast work, pictures of objects in motion, he takes a camera of the reflex type. For portraits and interiors he takes a stand camera with a tripod. If the photographer is conscientious he takes with him a battery of lenses of different foci, so that he may be prepared for anything that may turn up.

Now, I have used practically every camera on the market and have experimented with numerous camera manufacturers in an effort to get an instrument that would answer every purpose that it could possibly be called upon to perform in an active newspaper life. But there was always something lacking. While I could get excellent results along certain lines with my reflex, it would be absolutely worthless when it came to making time exposures, and time exposures are necessary in many branches of newspaper photography. Again, the camera that would answer all requirements in the regular stand camera work would be valueless when it came to making pictures of rapidly moving objects. And it is surprising how many times you want to make both kinds of pictures on one assignment.

One day after a particularly trying experience, when out of six exposures I only produced one presentable picture, I decided that it was time for me to quit experimenting and to go to work on a camera after my own ideas. Having had some experience in mechanical work, it was fairly easy for me to make the first rough model. This was in turn followed by a full size camera, but it was not satisfactory. My last effort was better, however, and this is the instrument I will now describe.

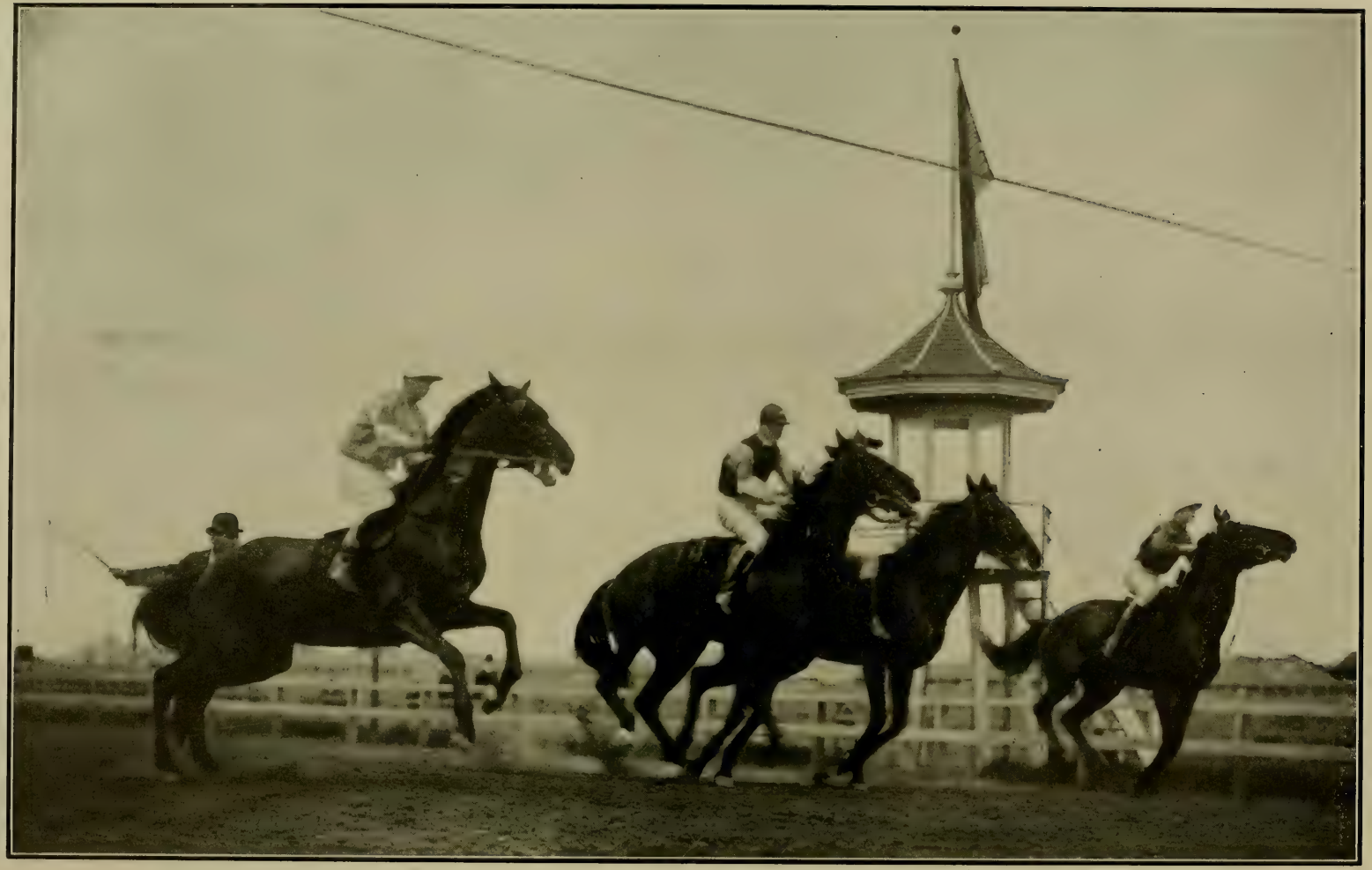


DETAIL PLAN OF THE CAMERA

A. Lens. B. Telescopic front board. C. Spring doors in front of lens. D. Focusing screw. E. Plate holder in place for wide-angle lens. F. Mirror. G. Speed tension. H. Mirror lever. I. Shutter screw. J. Space for plate holder in focal plane work. K. Shutter rod. L. Ground glass. M. Top of camera raised for focusing hood. N. Pneumatic release.

As will be seen from the detail plan and photograph of the camera reproduced herewith, the instrument differs materially from the accepted form of both reflex and graflex cameras. The most material change lies in the provision for lenses of different focal length. In using the focal plane shutter, the mirror is called into play, as in the regular reflex cameras, reflecting the image life size on the ground glass. The shutter tension is worked from the outside of the camera, thus allowing the operator to change the speed of the shutter without loss of time. To provide for the use of a long-focus lens without an attendant increase in bellows capacity, I made the board upon which the lens is placed telescopic. It has a play of about five inches and increased the bellows length just that much. The telescopic front board is in the shape of a box which fits in and engages another box. All that is needed in adjusting the proper distance is a pull or push as the case may be.

For the use of wide-angle lenses I have provided a second opening for the plate holder in front of the mirror. In this opening is placed a frame with an opening just large enough to permit the insertion of the ground glass used on the top of the camera when using the focal plane shutter. When this is in place the mirror is set at the same angle used with the focal plane shutter and the image is focused through the hood. An added advantage in focusing is the fact that the image is reflected right side up. No focusing cloth is needed, as the hood answers the purpose just as well if not better.



THE START—1-800 OF A SECOND

POLO—NOTE THE BALL—1-800 OF A SECOND

With the camera I am now using lenses of five, fourteen and eighteen inches focal length, so that when the city editor sends out for focal plane, wide-angle and stand camera pictures at the same time, I am a little better prepared for the battle.

The camera, with one loaded plate holder and my largest lens, weighs a trifle over

THE SOCIETY CIRCUS—1-600 OF A SECOND

SUBMARINE BOAT GROMPUS—1-500 OF A SECOND

nine pounds. It takes a 5 x 8 plate. My object in making it this almost obsolete size was principally to save in the weight and bulk of the instrument, and, as far as newspaper work is concerned, a 5 x 8 print is about as serviceable as a 6½ x 8½ picture.

HIGH SPEED WORK—THE BOAT AT THIS POINT IS MOVING TWO MILES A MINUTE—1-1200 OF A SECOND

SILHOUETTE OF
OSCAR MAURER AND WIFE
WHO DEPART FOR EUROPE
IN A FEW WEEKS
by ANNIE W. BRIGMAN

Medium-Power Telephotography

By G. H. Deller, M. D.

*SECOND PAPER

Most of the modern "all-round" lenses are often found to be of too short focus (if used on the size of plate for which they are listed) to give satisfactory and pictorial results in landscape photography. The practice is consequently fairly general to use one of the components of these R. R. lenses or anastigmats as a single lens of approximately double the focal length of the complete combination, with considerable improvement in the results.

Some lenses cannot be separated in this way, however, and when they can, it does not always happen that the camera will extend sufficiently to enable a focus to be obtained, especially with near objects. Moreover, there are many occasions when the increased focus of the single component is quite insufficient to give the result desired. It is here that the telephoto lens proves its value. Beginning usually at a focal length somewhat beyond that of the single component of the rectilinear used as its positive element, you have, without any bother in providing a casket of lenses (for which the camera would almost certainly not give sufficient extension) by merely increasing the camera extension, a choice of *any* focal length from, say, 18 inches to 36 inches (with an ordinary half-plate apparatus).

The power this gives of selecting and isolating that particular portion of the view which appears to compose best, and rejecting the unnecessary material surrounding it, which would all be included in the comprehensive sweep of a short focus lens, is very valuable.

It may be objected that the particular portion required could be enlarged from a negative taken with a wide-angle lens. Within small limits that could be done, but who as a routine matter ever takes that trouble? When enlarging is undertaken, few are content with a 6½ x 4¾ print as the result, and when we come to the larger sizes the advantages of starting from your half-plate telephoto negative are obvious. The magnification which has already taken place in this, has been of an ærial image, and a further enlargement of this negative, say, to 15 x 12, will show no perceptible grain, and can be of the highest possible quality. Compare this with the result of enlarging, say, an area 2 x 1½ inches from the negative taken with a wide-angle lens to anything near the same size, and the difference will be striking enough. However, apart altogether from all questions of subsequent enlargement, there is the enormous gain of having the view you want enlarged ready for observation on the focusing screen, being able to alter the size of the principal object at once, and to include so much or little of the surroundings as seems best, without once changing the position of the camera. How different is the fate of the short-focus man who finds he is in the best position to see the "bit" he wishes to reproduce, but that on the screen it appears of microscopic size, and when, in order to enlarge it, he wanders nearer, an ugly road or a modern villa encroaches on his field of view.

Besides, even in these days some happy mortals practice Photography without having high ambitions in the direction of pictorial work, and for topographical purposes quite as much as for pictorial. The worker with this lens is frequently able to

*The first of this series of two articles will be found in the May issue.

BERNE FROM THE GURTEN

Telephoto lens at equivalent focus of 30 inches, magnification 4 diameters, corresponding aperture, *f*-44. Exposure 3 seconds on orthochromatic plate, with yellow screen in sunshine at 3 P. M. on a July afternoon.

get results unobtainable by other means. To talk of panoramic views with a long-focus narrow-angle lens sounds contradictory, but considering the distance from which the subject can be taken, the expression is justifiable. The view of Berne, which accompanies this, was obtained from a hill (the Gurten) 1000 feet higher than the town, and about two and one-half miles distant, and leaving balloons out of the question, such a map-like effect could not otherwise be gained, for there is no height nearer which gives a similar prospect, and with an ordinary lens used from the telephoto standpoint, the whole town would occupy an insignificant area between a vast foreground of pines and a wide expanse of open country. This point may be interesting in connection with the supposed ill-effects of heat haze. I ascended the hill in question on a broiling July afternoon in the hope of getting a glimpse of the mountains of the Bernese Oberland. Though the day was cloudless, no trace of them could be seen, the haze in that direction was too pronounced. Not wishing to go back quite empty handed, I turned the camera toward the town, and with a moderate extension and magnification of about 4½ diameters, took this view. I don't think the haze or the "quivering" of the atmosphere will be found to have affected the definition, and even the line of the Swiss Jura, thirty miles away, can be faintly made out. The illustration, "A Pont on the Kraai River," was also taken with the thermometer at 90 degrees in the shade, and the air quivering with the heat of the South African sun at midday, and not even a yellow screen was used. It will be noticed that the corners of this print are darkened. This was due to insufficient

camera extension, and failure to notice the corners of the focusing screen, for at that time I had not taken the precaution, recommended before, of making on the baseboard the extension at which the plate becomes completely covered. An inch or so more would not have appreciably injured the composition, while it would have entirely prevented this unsightly blemish.

A PONT ON THE KRAAI RIVER, CAPE COLONY

Magnification, 2½ diameters. Aperture, *f*-15. Exposure, ¼ of a second on an ordinary plate. Sky cloudless midday.

Unfortunately, I have no "comparison" print of this scene, to illustrate the striking way in which some appearance of the true height of distant hills is given by the telephoto lens, compared with that dwarfing effect with which all are so familiar, in the case of the ordinary lens. An objection sometimes brought against telephotography, is that of confusing the planes of the picture, and it will undoubtedly give untrue effects in unsuitable cases. I have a print in which there is very little indication that certain mountains, fifteen miles away, are much further off than the houses of a town half a mile distant, but the only reason for taking this view was to get certain details in the mountains, and had a suitable position been chosen, the general effect could have been made very different.

The depth of focus of the lens is great, and the nearest objects are often comparatively far away, and so, to suggest distance in such a case by the expedient of having the only foreground sharply focused is not available. But there are other methods, and in the illustration above, the receding lines of the river banks, and the difference in tone of the kopje in the background, even in the dry "atmosphereless" conditions of the South African veldt, are sufficient, I think, to give a true idea of its actual distance of eight to ten miles.

There are two divisions of this subject. The first is concerned with general views; the second embraces the more specialized work of obtaining records of architectural details, whether interior or exterior, too distant to be reproduced of sufficient size by the ordinary lens. It is frequently the case that, with ordinary apparatus, the only standpoint from which the cathedral or castle, or whatever it may be, can be taken is so near that a wide-angle lens has to be used, with the inevitable consequence of "exaggerated perspective," as it is called; and possibly even then the height of a tower may defy the combined efforts of swing back and rising front to include the whole of it.

This may be inevitable. On the other hand, there may be some point, perhaps half a mile distant, where an accurate and pleasing photogram of the whole building can be obtained were a 30-inch lens available for the purpose.

The view of Chillon and the Dent du Midi which accompanies this, is an example of the advantage of being able to select a distant standpoint for the camera. From the usual point on the shore, from which this well-known scene is taken, only a side view of the castle can be obtained, and its relation to its surroundings, particularly important where these share in the literary (or sentimental) interest of the

CHILLON AND THE DENT DU MIDI

Magnification, 4¼ diameters. Aperture, *f*-48, equivalent focus from 33 inches. Exposure with yellow screen, 5 seconds, on an orthochromatic plate, on a sunny June morning.

building, is quite misrepresented. The distant mountain, especially, is dwarfed into insignificance, if shown at all; while, if the view is taken from our distant standpoint (a part of the shore jutting out near Territet), Chillon becomes a mere detail in a panorama of the upper end of the Lake of Geneva.

Work of this kind, with the difference in level between the camera and object

small, compared with the distance between them, will rarely require any special adjustment.

When detail work is entered upon, however, the case is very different, and the use of the swing back and a smaller stop in the positive lens will become necessary. Moreover, any considerable tilting of the camera by means of the tripod, will have disastrous results, especially on the slippery floor of a church; so if much work of this kind is contemplated, a tilting table should certainly be obtained. This, roughly, consists of two boards, hinged together, and capable of being fixed at any required angle.

The lower is attached to the tripod head, and is kept horizontal, the camera is screwed to the upper, and any required tilt given without moving the tripod. Photograms of external details should be taken in diffused light, the exposure should be ample, and the amount of contrast required, obtained by slow and restrained development. It is difficult to prevent detail taken in bright sunshine showing too great contrasts, though a liberal interpretation of the maxim, "expose for the shadows," will greatly help matters.

Magnification, 2½ diameters. Camera 14 feet from subject. Back focus, 8 inches. Aperture (calculated for the infinity back focus of 5 inches), *f*-14. Exposure, 3 minutes, on an instantaneous plate on a bright September afternoon.

When we come to portraiture, we find the great advantages of the lens to some extent counterbalanced by the long exposures necessary, when the light conditions are not at their best. Little difficulty in this direction will be experienced when the portrait can be taken out-of-doors, but telephoto work in ordinary rooms is usually impracticable unless a lens working at *f*/3 or *f*/4 can be used as the positive element.

The magnifications employed in this work must be comparatively small (rarely more than four diameters will be permissible), for, with the camera at great distance from the sitter, the increased extensions always necessary to bring near objects into focus will soon reach the ten inches or thereabouts, which is all that most (half-plate) cameras will give. Moreover, the inexorable rule, "The exposure increases as the square of the magnification," limits the use of the higher powers to those rare sitters whose attributes the Sphynx might envy.

For that kind of portraiture known as "large heads" the telephoto is practically the only lens capable of giving really satisfactory results with the ordinary amateur's apparatus; for if short-focus lenses are used they must be placed so close to the sitter that the distortion produced is most objectionable.

Mr. Dallmeyer has also shown that the telephoto has an advantage over an

ordinary lens, even of the same equivalent focal length, for work of this class, in that the distance between lens and sitter, for the same size image, is greater with the former, with the result of better "drawing."

For general portraiture, three-quarter lengths and such-like, there is the great advantage that we can allow any natural and comfortable attitude to be assumed (with improved chances of the face assuming a natural expression) instead of trying to cramp the sitter into as nearly as possible one plane, lest hands, knees, etc., should come out disproportionately large.

If through exigencies of space the camera cannot be moved far enough away to allow of an extension which will enable the lens to quite cover the plate, the slight darkening of the corners of the resulting print will be of little or no importance, if a dark background be chosen (as will usually be found advisable). Besides, the central area, say 5 x 4 on a half-plate, which is well covered, is frequently sufficient for the portrait required, and there is the advantage of greater working aperture, and lessened exposure, under these conditions. The quickest plates will usually be needed for this work, and whenever in doubt as to the exact exposure necessary, always err on the side of over, rather than under. I prefer to make the exposures by hand, using a cap that fits the lens quite loosely, being very careful to remove it, without jarring the lens, which is fatal, unless a second stand is being used, and this is really not required for this work.

A BASUTO MAID-OF-ALL-WORK
Magnification, 3¼ diameters. Aperture, *f*-20. Exposure, 1-15 of a second on a rapid plate.

The question of exposures requires some considera- tion, as the general rules for finding equivalent focus, aperture, etc., are considerably modified on account of the nearness of the subjects. There is a familiar instance of this with ordinary lenses when copying life size has to be done. We know that a focus is now obtained at double the equivalent focus length of the lens, and that the apertures marked on the lens mount have now only half their former value (*e.g.* *f*/8 becomes *f*/16), and consequently exposures have to be quadrupled.

The true equivalent focus of the lens (*i.e.* for distant objects) can be calculated from the actual back focus (when the near object is focused), the proportion the size of the image bears to that of the object, and the proportion between the focal length of the positive and negative elements of the lens. But this is not altogether simple, and it is much easier to find the true focus of the lens by first getting your subject arranged and focused on the screen in the ordinary way and then turning

the camera toward some distant object and racking it in, *not touching the telephoto rack and pinion,* until this is in focus. (It does not matter at all whether the plate is now fully covered or not.) The true aperture and focal length can now be calculated in the usual way (by measuring their back focus, etc.), and the exposure required for this aperture estimated. This known, it must be increased in proportion to the square of the distance the camera has had to be extended to bring the near object into focus.

All this sounds complicated, I know, but an actual example will perhaps simplify matters.

I wish to get a head three inches high on the plate, *i.e.* about one-third life size. My sitter is eight feet distant from the camera. I find I get the required image when the camera is racked out so that the back focus is twelve inches. The sitter is on a balcony, the camera in a room. I turn the camera until a distant church is in the field of view and rack it in (not touching the lens) until this church is in sharp focus. The back focus is now five and one-half inches and only the center of the screen is covered. I make the ordinary calculations and find the magnification is two and three-eighths, equivalent focus approximately 18 inches and the aperture *f*/14, at which I estimate the exposure required for dull light, late afternoon, etc., etc., to be two seconds. But the extension necessary to get the near subject in focus is 12 inches, therefore the two seconds must be multiplied by $\frac{12^2}{(5\frac{1}{2})^2}=\frac{144\times 4}{121}=4$ and about ten seconds will be the correct exposure.

SNAPSHOT OF HOCKEY ON THE SKATING RINK, DAVOS, FROM THE HOTEL BELVEDERE. 1-25 OF A SECOND, *f*-22

The illustration above is a portrait taken with the telephoto lens indoors, though the position chosen was strongly lighted, being in a corridor the greater part of one side of which was glass.

The characteristic softness and roundness of most telephoto portraits is not well shown in this instance, the lighting being harsh.

The exposure was three seconds on a very rapid plate (Smith's instantaneous), the *calculated* aperture being *f*/14 and equivalent focus 18 inches; Wynne's actinometer; time was 65 seconds. It will be noticed that the plate is not completely covered, but that this has not been of much importance in this case.

This expression is used rather than "snap-shot" or "hand-camera" work, because an actual snapshot can only be successful under exceptionally favorable conditions, whereas exposures of a quarter second or an eighth second are often quite feasible.

I am, of course, as always in these articles, assuming that the positive lens has no greater aperture than *f*/6. With expensive and bulky portrait lenses at *f*/3 as positives there is, so far as mere exposure goes, little difficulty in snapshot work. But,

TELEPHOTOGRAPH OF HOCKEY ON THE SKATING RINK, DAVOS, FROM THE SAME POINT AS SMALL VIEW

Magnification, 4½ diameters (6 diameters compared with the small view). Aperture, *f*-28. Exposure, 1-20 of a second, on an instantaneous plate, on a cloudless January afternoon.

THE SAME VIEW FROM THE SAME POINT AS THE PRECEDING

Magnification, 6½ diameters (9 diameters compared with small view). Aperture, *f*-40. Exposure, 1-15 of a second, on an instantaneous plate.

even with a lens of such rapidity as positive the proportion of even passable results when used in a hand camera will be very small. No ordinary finder is of much use for an angle of view of 10 or 15 degrees, and if it were, the slightest movement of the body with a lens of, say, 25-inch focus is sufficient to alter completely what we hoped to get on the plate. There is also the extreme difficulty, impossibility almost, of any accurate focusing by scale with this lens, and the necessity for extremely rapid exposures to prevent unsharp results when a lens with the especial susceptibility to vibration of the telephoto is supported merely by the body. What the possibilities of Mr. Dallmeyer's new type of telephoto—the Adon—may be I cannot say, but for ordinary forms no reasonable certainty of good results can be expected unless the focusing screen is used and the camera therefor is fixed on a stand.

The best way of securing moving objects under these conditions is to focus a spot over which the object will pass, set the shutter, insert the plate and draw down the slide, making the exposure when the object is seen to reach the selected position.

It must be borne in mind that for the same distance of object the exposure necessary to prevent blurring must be less with the telephoto than an ordinary short focus lens, for the apparent rate of motion of the image on the plate is of course magnified as much as the image itself is. On the other hand, the object can be taken at a much greater distance with the telephoto and yet the image be of the same size as with an ordinary lens close at hand, and then no lessened exposure is necessary.

There are good opportunities for "instantaneous" telephoto work at the seaside, for exposures there can often be cut down with comparative safety. For such moving objects as distant boats an ordinary finder will be of use. The lens should be focused on something at approximately the same distance as the boat, yacht, etc. (if this is moving too fast to allow it to be easily focused), and the camera pointed well in front of the moving object. The plate is inserted, shutter set, slide withdrawn and the exposure made, when the object is seen to be exactly in the center of the finder field.

Taking wild animals in their natural haunts is distinctly specialist work, and though exceptional opportunities can now and then be taken advantage of, as a rule good results cannot be expected without the use of the most rapid lenses and special cameras in which to use them.

A short description of the accompanying illustrations may be useful. The industrious Basuto washerwoman (also cook and housemaid) objected strongly to being taken, and all my attempts with a hand camera at close quarters were frustrated. I therefore fixed up the telephoto one day inside the house and focused it in her absence on the washing apparatus. When she returned and assumed a favorable attitude the shutter was released, the lady to this day not knowing that my innocent manipulations with a camera in a distant room had any reference to herself.

The exposure was one-fifteenth of a second with actual aperture *f*/20 and equivalent focus of 24 inches.

The three winter views all represent the same scene (Hockey on the English skating rink at Davos Platz), taken from the same point, a balcony on a hotel about a quarter mile distant. The small view was taken for purposes of comparison with a hand camera and lens of 5½-inch focus (exposure 1-25 of a second with *f*/22). The next view is a telephoto taken with a half-plate camera and extension of 12½ inches. The equivalent focus is about 32 inches and aperture *f*/28. The exposure

was 1-20 of a second. The figures are here fairly sharp and well exposed. As an experiment I then increased the back focus to 23 inches (by means of a removable front extension). The aperture was now equivalent to *f*/40, and an exposure of 1-15 of a second was given (the focus of the lens was now nearly 50 inches.) Of course, short shutter exposures at apertures like this can only be given under very exceptional conditions. Here there were the clear air of the Alps at 5000 feet, a cloudless sky and snow everywhere. However, the power of varying the size of the image without changing the standpoint or lens is well illustrated.

These articles have been concerned mostly with the application of telephotography at low and medium magnifying powers. It will be understood, however, from what has been said before that considerably greater degrees of magnification can be obtained by using a special telephoto camera extending to 22 inches more in the half-plate size, or by having an additional extension made for the ordinary camera, which addition need only be taken on the rare occasions when high magnifications might be expected to be advantageous. Adaptations of this kind may be home-made, though some of the camera manufacturers, I believe, will provide them. The best form is probably that which is attached to the back, as the camera will then be better balanced. But the exact form must depend on the pattern of camera in use. The limit to the magnification obtainable by such means is fixed only by the length of one's arms (as a focus can be obtained at *any* extension), for beyond a certain extension it will be impossible to manipulate the rack and pinion on the lens, and at the same time observe the image on the screen. It is in these cases that the use of the focusing magnifier mentioned before is of advantage.

It will have been obvious that my own work has been mainly done with a half-plate apparatus, and I think that that, on the whole, will be found the most convenient size. It is small enough to render enlarging easy if required, and large enough to give a fairly satisfactory print direct. With the larger sizes, questions of cost and bulk loom large, though occasionally a larger camera can be used very satisfactorily (at the longer extensions, of course) with a half-plate lens. Five by four is also a convenient size, but anything less is too small to show the lens at its best, besides giving no margin for trimming in case the lens should require to be used occasionally at an extension not quite covering the plate.

FINE ARTS BUILDING, ST. LOUIS EXPOSITION

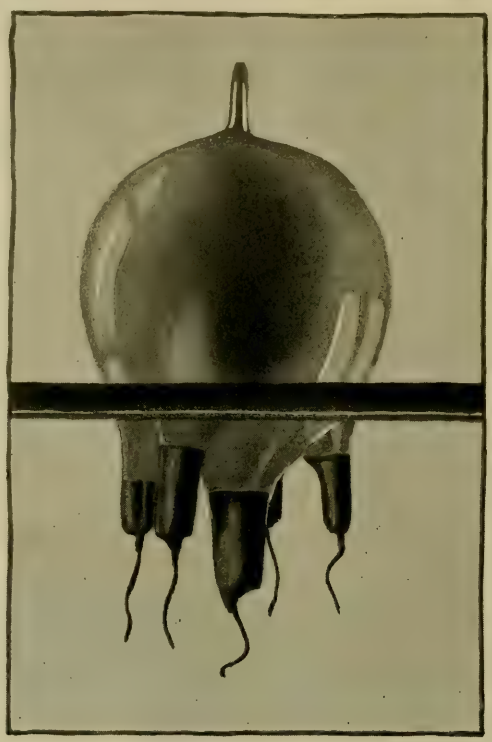
Some Remarkable Scientific Discoveries

By H. C. Tibbitts

The New Mercury Vapor Lamp

Twelve months hence we may expect to see the announcement on photographers' shops, *"Portraits made at any hour, day or night."* While portraiture, through the aid of various flashlight compounds, has been practiced at night for several years the process has never proven commercially practical because of the objectionable explosion and the odor of the medium used. A few venturesome photographers have tried night portraiture with the ordinary electric arc lights, but here again objectionable features entered, the blinding glare being anything but comfortable.

But, if we may believe the reports from Philadelphia, the new mercurial vapor light produced by Peter Cooper Hewitt of that city, will sweep away all of the objectionable features of night photography, generally improve the making of photographic portraits and render unnecessary the use of the Grün lens in making photographs of large assemblages and bodies of like nature.



THE NEW ARC LAMP

The new light is an arc lamp using mercury vapor in a vacuum tube for its arc instead of the usual carbon points. In appearance the light is a peculiar greenish blue, and the human face under its rays has an almost ghastly appearance. There is a total absence of red rays and an excess of violet rays in the light, making it highly actinic and therefore more sensitive to the photographic plate than any other color of light rays.

The new light costs about one-eighth as much as the ordinary incandescent lamp of equal power. The tubes are practically everlasting, breakage being the only danger. While scientists have experimented with the mercury vapor arc since 1861, Mr. Hewitt has brought forth practical results and has opened the way for progress, the limits of which cannot be even guessed. Mr. Hewitt predicts even now that it will not be long before light of any color we wish may be purchased even as we use the ordinary light of today. It may be possible that those who have been engaged in color photography may profit by experiment with the new light.

Light From Human Bodies

Another Philadelphian, Professor Arthur W. Goodspeed of the University of Pennsylvania, has attracted attention through his researches in the study of light rays. At a meeting of the American Philosophical Society, held on May 15th, Professor Goodspeed made the announcement that he had discovered a hitherto unknown property of the human body to absorb and give forth light rays of certain character. Several experiments in which the Crookes tube was used as the base of the light supply were made, but the X-rays from the tube were shielded from the photographic plates by means of a light-tight box. Photographs were then made of opaque objects by means of what Professor Goodspeed termed "secondary activity emanating from the hand under the influence of the X-rays."

Professor Goodspeed's explanation of the phenomenon as given to the press is as follows:

"All matter absorbs radio-active energy in waves of varying lengths, and gives off this same energy in waves of a changed and definite length. The energy that has been thus transformed is characteristic of the matter that gives it forth.

"The human body gives out the rays of waves of this energy with comparative freedom and force.

"It is to be presumed that the character of the human rays vary in an infinitesimal degree with the person and that each man, woman and child gives forth not merely the characteristic human light, but a light that is absolutely unique and identifying.

"These rays from the human body are not sufficient to be appreciated by the human eye. It may be that they are seen by the eyes of smaller animals. For instance, a mouse probably sees a man in a dark room by the light of the man himself."

These experiments are not the first that have been made, Roentgin, Sagnac and Guillox having developed to some extent the theory that all matter gives off light.

The fact that fireflies and fish give forth light is well known and there is nothing scientifically impossible in the deductions of the Philadelphia scientist.

A New Element—Polonium

At the Congress of Applied Chemistry, which convened in Berlin on May 31st, Professor W. Markwald of Berlin, exhibited a tiny bit of polonium, the metal recently discovered by Professor and Madame Curie of Paris. There had existed in the minds of the scientists some doubt as to whether or not polonium was a primary element, but this doubt was dispelled by Professor Markwald, who demonstrated that it was a primary element.

He exhibited a bit of metal weighing 15-100 of a grain which was produced from two tons of uranium at a cost of $75. It is more sparsely distributed in uranium than xenon, the most rarified gas, is in the atmosphere.

Professor Markwald gave an exhibition of the powers of his speck of polonium. It intercepted a strong current of electricity passing through the air from the generator to the receiver, the air ceasing to be a conductor for the flashes. The room was then darkened and pieces of barium, platinum, zinc blende, placed near the polonium, glowed with a bright greenish light. The assemblage of chemists were thrilled with astonishment. It appeared to be a miracle.

SKETCH
by ADELAIDE HANSCOM

Photographers of California Organize

An Association With Many Members

F. A. WEBSTER, PRESIDENT

The Photographers' Association of California is now an assured success. The membership numbers over one hundred and is still growing. An active committee is at work upon the matter of clubrooms, and it is the intention of the board of officers to make the organization social in character as well as educational. Meetings will be held on the first Tuesday of each month and if the future meetings prove as interesting as the first two the association will be a power for good.

The following well-known photographers have been selected as the officers of the organization:

F. A. Webster, president; M. M. Morrison, vice-president; D. F. Mullender, secretary; Hiram G. Vaughan, treasurer.

The following committees have been appointed by President Webster:

Halls—T. P. Andrews, L. F. Terkelson and W. E. Smith.

Convention—O. H. Boye, F. W. Guerin, W. Lussier, W. H. Oliver, Louis Thors, E. Bowman and I. W. Taber.

Constitution and By-Laws — Jacob Fowzer, Carl E. Ackerman and O. H. Boye.

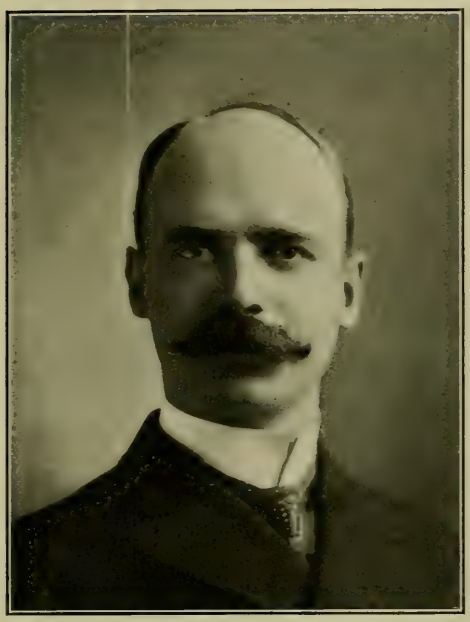
Entertainment and Banquet—H. G. Vaughan, O. H. Boye, T. P. Andrews, Carl E. Ackerman, L. D. Hicks and F. H. Dorsaz.

Press—Carl E. Ackerman, CAMERA CRAFT; A. C. Pillsbury, *Examiner;* G. W. Haley, *Chronicle;* C. V. Robinson, *Post;* O. F. Lussier, *Bulletin;* T. C. Murray, *Examiner;* G. J. Fowzer, *Examiner.*

Names of Members—Carl E. Ackerman, T. P. Andrews, F. C. Adams, C. H. Anderson, O. H. Boye, E. L. Bowman, J. F. Bertrand, F. D. Burleigh, F. K.

M. M. MORRISON, VICE-PRESIDENT

CHARTER MEMBERS OF THE PHOTOGRAPHERS' ASSOCIATION OF CALIFORNIA, TAKEN ON THE FIRST MEETING NIGHT BY J. F. MULLENDER



H. G. VAUGHAN, TREASURER

Brown, L. D. Barrows, F. W. Burnett, B. Blauert, S. Cohen, W. H. Carruthers, A. W. Craig, P. F. Dana, F. H. Dorsaz, F. H. Doyle, Jacob Fowzer, Mrs. Lena Franklin, G. J. Fowzer, F. W. Guerin, George Habenicht, A. P. Hill, George W. Haley, F. H. Hanson, L. D. Hicks, J. G. Hucks, W. G. Hemenway, Charles Johnson, Ernest Jutting, L. M. Kaiser, G. C. Keeney, G. F. Kelly, C. F. Kohler, George H. Knight, William Lussier, O. F. Lussier, Paul Lotz, I. H. Latour, F. B. Logan, D. F. Mullender, M. M. Morrison, C. A. Meyers, J. F. Mullender, Fred B. Mussey, A. Magagno, A. F. Muhr, H. J. Miles, E. J. McCullagh, Herbert Miles, T. C. Murray, W. H. Oliver, E. Belle Oudray, H. A. Ongerth, Arthur C. Pillsbury, George Peters, George C. Porter, C. L. Peterson, M. F. Peasley, C. F. Priest, J. C. Rasmussen, George V. Robinson, Carl T. Smith, W. E. Smith, W. J. Smith, C. B. Stevens, R. E. Scharz, D. Sewell, R. J. Seeds, H. J. Schillcock, Mr. Sanford, I. W. Taber, H. C. Tibbitts, Louis Thors, L. R. Talcott, R. A. Towers, L. F. Terkelson, H. Tonkin, J. C. Turner, L. J. Tessio, H. G. Vaughan, H. Van Oschot, W. E. Waterberry, F. A. Webster, R. P. Whigham, Charles Weidner, C. J. Wall, H. Wetherbee, George L. Wilcox, Fred Wedder and J. Yaeger.

A movement is already on foot to hold a convention during the coming fall. Much interest is being manifested in this direction, especially among the younger element of the association.

To celebrate the successful organization of the association the dealers in photographic supplies, the proprietors of studios and the San Francisco representatives of several of the leading manufacturers gave a banquet to the members on the evening of June 16th. The affair was an informal one and was thoroughly enjoyed.

Speeches were made by prominent members of the association and many sentiments were expressed portentous of long life and prosperity for the new organization. The next meeting will be held on Tuesday, July 7th.

D. F. MULLENDER, SECRETARY

My Method of Making Etchographs

By A. L. Jackson

Here is my way of making etchographs, or whatever you are pleased to call a photograph worked up with pencil or crayon. I call them etchographs, and as the demand for them in my territory has been quite vigorous, I do not hesitate in taking a page or two of space in Camera Craft to tell about it, especially as the editor asked me to.

I have employed the principles of this method for years to a greater or less extent in improving defects in the background when making enlarged negatives from small ones, and I doubt not but what many other photographers who read this will see at a glance familiar ground over which they have traveled, and possibly some already do this work in just this same way. But I am sure there are many who never have thought of it, and do not realize how simple it is to make photographs look like pencil sketches or crayon drawings at will. And I can assure you that it is much more simple than it reads. I will be compelled to either give a description of enlarging negatives by the transparency process or take it for granted that the reader already understands that. I have a way of my own for enlarging, but will not here attempt to enter into details of this process, for most all photographers have a way of their own for making large negatives from small ones, and for producing a positive from a negative or the reverse. This is an important item in this work since the drawing is all done on the back of the positive. The illustrations here given are from prints made from the original negatives just as they were made for the etchograph picture. You will see that the subject was placed before a white background, no accessories being used. The negative was made on a 6½ x 8½ plate, and no retouching was done on it at all. I take the negative thus described and place it in the enlarging camera and make a positive on an 8 x 10 plate, thus enlarging some from the original. I flow the back of the positive with Aristo matt surface varnish which gives a splendid tooth for an ordinary soft lead pencil, being careful, however, to let the varnish dry thoroughly before beginning to work on it.

THE ORIGINAL NEGATIVE REDUCED FROM A 6½ x 8½ PRINT

The retouching frame is a good place to do your drawing, but I prefer to work before a window on an ordinary table. By slanting the positive at an angle of 45 degrees or more with a white paper under it, you can see beautifully. The ground glass effect the varnish gives it makes the light fine. You need not confine yourself to the pencil in your drawing, for the varnish surface takes ink quite as well as pencil. Whatever may be said of this style of work, there is one thing none can deny, and that is that it gives an unlimited field for the cultivation of the artistic ability

THE FINISHED PRINT, REDUCED FROM A 10 x 12 PRINT

that a photographer may possess. The success or failure of the picture depends entirely on the ability of the photographer to draw well. After you have drawn in the background as you like it, and completely finished your picture, carefully scrape off all the ground glass varnish from over the face and hands, for the reason that in copying the negative from this positive you would have your face a little out of focus unless you did scrape off this diffused effect caused by the varnish, and this very same diffusing only adds to the other parts of the picture. I always copy both positive and negative with the film side of my plate away from the exposed plate, for the reason that the results are better and also it is best to have a regular system in order to prevent an occasional reversed negative.

DR. ARNOLD GENTHE, CHAIRMAN OF THE COMMITTEE ON SELECTION

Jury of Selection Has Been Appointed

Rules and Regulations of the Third San Francisco Photographic Salon

The management of the Third San Francisco Photographic Salon has appointed the following Jury of Selection:

Arnold Genthe, Chairman, F. E. Monteverde, Newton J. Tharp, Henry W. Seawell and John M. Gamble.

All of these gentlemen are well known in photographic and art circles and their selection will do much toward placing the coming exhibition on a firm and substantial basis.

A daintily printed announcement has been issued as follows:

"The California Camera Club announces that in conjunction with the San Francisco Art Association, the Third San Francisco Photographic Salon will be held in the galleries of the Mark Hopkins Institute of Art, in the city of San Francisco, beginning October 8, 1903, and continuing two weeks.

"It has been the object of this salon in its previous exhibitions to exhibit that class of photographic work which shall best exemplify artistic feeling and execution. This idea will be maintained in the present salon, but with a higher standard than heretofore. With this in view the pictures will be selected by a jury appointed by the San Francisco Art Association."

Rules and Regulations

All pictures that are exhibited must be framed or matted under glass, and the management prefers that this should be done by the exhibitor, but in order to encourage liberal contributions from pictorial photographers at home and abroad, and to save the expense of framing pictures which may not be accepted, as well as the greater expense of transportation, pictures suitably mounted or matted will be received from contributors in the United States, and such as are accepted by the Jury of Selection will be glazed by the Salon Executive Committee at the exhibitor's expense.

In all cases where pictures are sent by mail they must be accompanied by return postage.

Foreign contributors may send their pictures either unmounted, mounted or matted, as they desire, and the management will mount and glaze those accepted and return the entire contribution to the owner after the exhibition, free of charge. With the foregoing exception all transportation charges must be paid by the exhibitor.

No prizes will be awarded, nor will any fees be demanded of exhibitors.

The title, the exhibitor's name and address, and if for sale, the price, must be written on the label provided, and attached to the back of each picture. Nothing shall appear on the front of the picture except its title and the maker's name.

Contributors may submit as many pictures as they desire, but not more than twelve will be accepted from any one individual.

Each picture submitted must be entirely the work of the exhibitor. Pictures will not be received bearing the names of firms or galleries.

All pictures submitted for exhibition must be addressed "San Francisco Photographic Salon, Mark Hopkins Institute of Art, San Francisco, California," and forwarded at owner's risk, charges prepaid, and delivered at the Institute not later than September 15, 1903.

From the price of any picture sold during the exhibition, ten per cent will be deducted.

No picture shall be removed from the gallery until after the close of the exhibition.

The management, while exercising the greatest care of the contribution, will not be responsible for any loss or damage.

To each contributor whose work has been accepted a catalogue will be mailed as a notification of such acceptance.

All communications should be addressed to the Executive Committee of the San Francisco Photographic Salon for 1903, 819 Market street, San Francisco.

CAMERA CRAFT

ISSUED MONTHLY BY

THE CAMERA CRAFT PUBLISHING COMPANY

114 GEARY STREET, SAN FRANCISCO

Edited by CARL E. ACKERMAN

VOL. VII SAN FRANCISCO, CALIFORNIA, JUNE, 1903 NO. 2

Professional Photographers Organize

The professional photographers of California have at last awakened to the necessity of a closer communion with each other and have organized an association modeled closely after those of the East. An able board of officers has been selected and a committee has already been appointed to consider plans for the first annual convention, which in all probability will take place during the coming fall. CAMERA CRAFT urges every professional photographer in California to become associated with the new organization.

Another Salon Number

The November number of CAMERA CRAFT will be given over entirely to a report of the Third San Francisco Photographic Salon. The last San Francisco Salon number published by CAMERA CRAFT was sold completely within ten days of the date of publication and copies now command a premium, as much as four dollars having been offered and refused for single numbers.

An Innovation That Took

"* * * * in order to encourage liberal contributions from pictorial photographers at home and abroad, and to save the expense of framing pictures which may not be accepted, as well as the greater expense of transportation, pictures suitably mounted or matted will be received from contributors in the United States, and such as are accepted by the Jury of Selection will be glazed by the Salon Executive Committee at the exhibitor's expense."

This paragraph in the announcement recently issued by the management of the Third San Francisco Photographic Salon has attracted much favorable comment

from foreign exhibitors and already assurances have been received that the display of pictures by foreign workers will exceed by far that of the two previous exhibitions.

Other organizations, appreciating the value of the innovation, have adopted an even more liberal stand and will offer not only to matt but to frame accepted prints.

Sanford Robinson's Work

The painstaking presentation of experiments, results and deductions bearing more than ordinary interest as an exposition of the underlying principles of stereoscopic work that appeared in this magazine some months ago, has resulted in a most gratifying amount of interest being aroused. Several of our correspondents have asked to be put in communication with Mr. Sanford Robinson, the writer. Prints made after the formula prescribed have been sent from several countries and other workers have congratulated the author on his success in reducing the matter to so scientific a formula as to the amount of separation demanded for any particular distance of the object. Professor A. Graham Bell, of telephone fame, has suggested to Mr. Robinson the possible applicability of the principle to a range finder and requested that he give the matter his consideration. That so able a scientist as Professor Bell has recognized the value of the work should be most flattering to Mr. Robinson as well as CAMERA CRAFT, which first gave the result of Mr. Robinson's labors to the world.

PEONIES BY BELLE JOHNSON

How to Make Cheap but Excellent Photo Trays

By W. S. Standiford

The amateur photographer at the beginning of his experience with a camera, usually has an idea that a costly outfit of trays for developing, toning and fixing is necessary for the making of good pictures. Now nothing could be further from the truth, as cheap, but most excellent trays can be made by any person who can handle the few tools needed for their construction.

The writer of this article is an amateur photographer of twelve years' experience, and knows that many prospective amateurs are deterred from purchasing a camera on account of the expense of the outfit; as they naturally do not care to put much money in their first camera and photographic material —not knowing whether they will like the work.

To the prospective amateur the writer would therefore recommend the following trays as being extremely handy, easy to make and cheap, they being able to stand considerable rough usage. The lighter pasteboard dishes could be made of sufficient lengths and diameters, to fit one within the other, thus occupying small space, and also being light in weight for traveling.

We will first make a tray out of a cardboard box that contained two dozen sheets of writing paper, and the same amount of envelopes. Both bottom and cover can be used, thus making two dishes—one for developing and the other for fixing.

The average size of a box containing letter paper is 5¼ inches wide, 6¾ inches long and 1¼ inches deep. Take the lid off a cigar box, cut two pieces one-quarter of an inch wide and 6¾ inches long, and glue them lengthwise in the pasteboard box—each strip being one inch from the sides. After this is dry, paint the entire tray inside and outside with asphaltum varnish and let dry.

Take a piece of white paper, one inch square, and with pen and ink mark the letter "D," pasting the paper on the side of the box. Buy one-half pound of paraffine and one-half pound of beeswax at a cost of 30 cents. Melt both in an old tin tomato can or a dish, pour it into the tray and tilt the tray so as to make the wax flow over the bottom and up the sides getting it as near the top as possible. Then take a brush dipped in the melted wax and finish waxing the inside, sides and bottom. When cold it is ready for use, being unaffected by the usual acids and alkalis in the developing, fixing and toning baths used in Photography.

Fig. 1 shows the tray as finished, the strips "S. S." being used to keep the plate from sticking to the bottom; they also strengthen

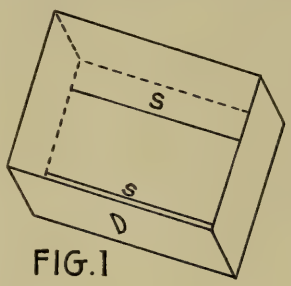


FIG.1

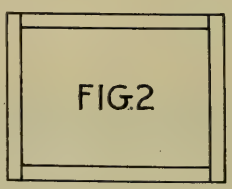


FIG.2

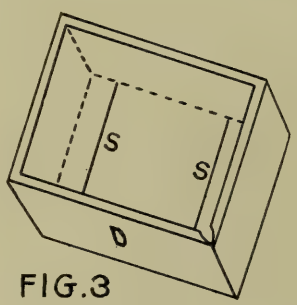


FIG.3

the tray. The letter D on the side shows that the tray is to be used for developing. The letter paper box of the indicated size makes a most admirable dish for 4 x 5 negatives and smaller, being compact and light. Of course, various sizes of cardboard boxes could be used to make trays, suitable for different sizes of negatives.

There should be no difficulty in getting the boxes, as most all the large dry goods stores are, generally speaking, only too glad to get rid of them. When a larger box is to be made into a tray, should the sides be higher than

desired, they can be cut down—first marking with a pencil a line on the side of box, line to be of equal distance measured from the bottom, and then cutting with a knife or scissors along the line.

We will now take up the construction of wooden trays, which although being heavier than the pasteboard are more durable, they are also far superior to the hard rubber and fiber goods sold in the stores, which are very brittle and have to be handled carefully lest a piece should be broken out.

From this fault the thin, flexible rubber trays made in small sizes up to 4 x 5 inches are excepted, it being very difficult to break them. To make a developing dish of wood proceed as follows: Suppose it is desired to make a 5 x 7 inch tray. The first article needed is the wood, which we get by making a raid on the cellar of our dealer in groceries.

The grocer generally has a fine collection of boxes with thin boards, and is found willing to give a few of them away to a customer—or a prospective one. Selecting boards about ¼ or ⅜ of an inch thick, and 5 or 8 inches wide, free from knots, smooth them off with a plane, or if one is not handy, take a piece of coarse sandpaper and tack it around a block of wood, and smooth the wood with that. After the roughness is taken off, two strips 1¼ inches wide, ¼ of an inch thick and 5¾ inches long are made. Also cut two more strips of wood the same thickness and width and 8 inches long.

Now take the two 8-inch strips and one of the 5¾-inch strips, fasten the latter across the top of the longer pieces, one on each end, by the aid of wire brads, then nail the other strip across the other end. You then have a frame shaped like Fig. 2. Next we cut a piece for the bottom of the tray, 8½ inches long and 5¾ inches wide—if a board of the correct width is not at hand use two narrow pieces of sufficient width to be level with the side of dish; when the bottom is nailed on with the ¾-inch brads, spacing about one half inch apart.

Take your knife and cut in one corner, on the inside of tray, diagonal to the sides, a lip for pouring the solution out. Cut two narrow strips ¼ of an inch wide and 5¼ inches long out of a cigar box lid, and glue them on the bottom at a right angle to the sides, each strip being placed 1½ inches from the ends of the tray. Carpenter work finished, we next proceed to mark the letter "D" on a piece of paper one inch square and then glue it on the side. Also glue a piece of heavy writing paper on the bottom across the joint, if two boards have been used instead of one.

Coat with asphaltum varnish, top, bottom and sides; when dry coat with the mixture of paraffine and beeswax, in the manner previously described. Fig. 3 shows the finished tray. The construction of various sizes of wooden dishes for developing, toning and fixing baths can be designed by the amateur photographer to suit his needs by following the above methods of procedure.

These articles, if carefully made, will last many years and give good satisfaction. A fixing tray should be made to hold six to twelve negatives.

Those living in tropical climates will find it best to use the following composition to coat the trays with, instead of using the wax. This cement will be found to be water-proof. Mix the ingredients as needed, as it hardens very rapidly. Put litharge finely powdered into glycerine to make a semi-liquid paste. Mix the two thoroughly and pour into the bottom of dish, leveling it with a piece of pasteboard bent into L shape. Grease the piece with oil or vaseline to prevent it from sticking.

When the bottom is hard, coat the sides in the same way. And when the cement is thoroughly dry give it a couple of coats of asphaltum varnish. After that has set wash the tray well, putting in a pinch of washing soda with the first wash water to cut the grease. It is not necessary to put the cement on the outside, the varnish being sufficient to keep it from rotting.

Color Screens

Gelatine, so often recommended as the vehicle for the stain in making light filters, is not always the best for the purpose. Its hygroscopic nature renders it unsuitable, and there is also the liability to damage from dust and surface markings, which make the life of such a screen a very short one. Home-made screens are, it appears, a necessity to the color worker to meet all requirements. It may be useful, therefore, to mention that a solution of inverted albumen in alcohol forms a most perfect medium for staining. It dries upon glass in a few minutes, giving a surface of great hardness, free from all structural markings, and so smooth that it is difficult to tell which side is coated. It readily absorbs all dyes, will take any depth of tint, is quite insoluble when once dried, and is so hard as to be little susceptible to damage with ordinary care.

A Photographic Digest

By Dr. H. D'Arcy Power

Edinol

I have referred on several occasions to edinol (which in my own practice has superceded other developers). In the *Photographische Rundschau* for April Dr. Buchner writes a critical review of his own experience, which he tells us was undertaken because he felt that most of the reports dwelt only on its good qualities and might be biased. He instituted a long series of experiments, which are reported in full, and from them he draws the following conclusions:

First—Edinol is perhaps the most noteworthy developer of modern times, in that according to the method of preparation it is equally valuable as a quick developer, a slow developer or for stand development; in the last case I have never observed yellow or red stains.

Second—Strong alkalies such as caustic potash, are not necessary in its preparation; in fact, not advisable, as the stability of the mixture suffers.

Third—The best formulæ are those of Dr. Eder's, with potash or soda. Soda demands a rather long development time to produce the necessary density. (I use one-half of 1 per cent edinol and 5 per cent carbonate of soda and find the development factor about 16 translator.)

Fourth—If it is not imperative to finish development in a very short time it is advisable in that according to the formula used what more diluted with water than Eder advises.

Fifth—To use edinol in combination with other developers is neither necessary nor advisable in that according to the formulæ used it is capable of yielding alone any result that other developers give.

Sixth—In comparison with pyrocatechin, it has advantages and disadvantages, and for my part I would not like to lose either. Professionals are more conservative than amateurs in the matter of developers, but in this case they would do well to make a searching examination of the new developer. Above all it is to the photographic beginners that it can be most warmly recommended. They will find what they seek, a developer suited to every purpose that neither stains the skin nor linen.

Not sufficiently can I advise here, as in all cases, to use separate solutions. Every developing place has surely room for two bottles. There is, and always will be, a difference according to whether development be effected with a diluted one solution developer or by mixing reducer and alkali according to the needs of the exposure. In the case of great dilution, as in tank development, the case is different.

Finally, edinol has an advantage that deserves to be widely known, namely, its indifference to hypo, in which it exhibits an unexpected resemblance to pyrocatechin. I have found experimentally that an addition of 20 c. c. m. (and perhaps more) of a 5 per cent solution of hypo to 50 c. c. m. of developer causes neither fog nor appreciable stain. By the addition of 10 c. c. m. development and fixation proceed simultaneously, but naturally development is very prolonged. I have determined that hypo is equally harmless in the development of bromide papers, in that the whites remain perfectly pure, an advantage that can be easily appreciated.

Trichromatic Photography

It has been said with much truth that the general use of Photography in natural colors would not be altogether an unmitigated blessing. That the artist in dealing with colors uses the same license he permits himself in composition; and that an exact color reproduction by the camera would not give us pictorial effects any more than it does in monochrome.

It may be freely allowed that the modifications made by the artist in a color scheme are often to the great advantage of the picture, but it is doubtful if the average photograph taken in colors would be as unpictorial as the average production of the amateur at the present time. First, because the selection as made by the inexperienced is often good enough as a color scheme and attracts him for just that reason. When turned into black and white, lines and masses of similar values clearly defined by their color contracts are no longer distinguishable, and the

maker of the pictures finds that he has no record of what he really saw. Secondly, there are effects, especially of light transmitted through objects, such as flowers, leaves and fabrics, that are amongst the most beautiful of all pictorial manifestations, and yet elude the skill of the greatest artists and are not transmutable into black and white by the camera.

That many of these effects would be easily realized by Photography in colors is evident on an inspection of the last production of Dr. Miethe published in the May number of the *Photographische Rundschau*. The subject is that of a young lady dressed in white and carrying a red sunshade, walking on a rocky coast, backed by the pale blue of the distant sea. The sunlight bathes in gold the yellow rocks, penetrates the parasol in fiery radiance, and falls in flecks of light on the shoes after its passage through the translucent folds of the white dress. These effects are marvelous in their realism and, as the composition and color scheme is good, we have here a photograph taken in colors that is a picture in every sense of the word and is pregnant with promise for the future. Dr. Miethe is to be congratulated on all he has so far done and especially on this last effort. However roundabout a process dependent on three-color printing may be, we have here results that only the best technique of the brush could equal, and could in no wise surpass.

A Substitute for Intensification and Reduction

Mr. Hudson Chapman of the Philadelphia Photographic Society (Vide Journal), has recently pointed out that intensification and reduction are very unsatisfactory processes, constantly leading to the destruction of the negative. In place thereof he advocates the making of a new negative by means of a transparency produced from the original. He says: "By making a positive from the original negative, for instance, in the case of a negative that has been over exposed and is consequently too soft, slightly harder than the original and again making a negative from that which will admit of any degree of contrast we may desire, we can obtain any result. And, if unsatisfactory, the original negative is uninjured. The operation may be commenced anew and a result in either direction obtained, and the original still be fit for use in its first state.

"When a negative is too hard, by giving a long exposure and using a weak developer, a softened positive may be obtained from which a negative of the proper density can now be made."

Platinotype Printing

Mr. H. T. Malby (reported in the *English Amateur Photographer*) in a recent lecture on platinotype, made a suggestion that is new and worth remembering:

Platinum always prints best when there is plenty of blue light in the sky, and it is curious to note the remarkable difference in the quality of prints made in suitable and unsuitable weather. In the lecturer's opinion it was not merely the state of the atmosphere, but the effect of the blue rays of the spectrum suiting the paper best. Another hint related to the examination of the paper during printing, and he said that if the light by which the paper was viewed was filtered through some yellowish medium (the thin paper in which Platona is wrapped is one of the best things), the detail in the print could be seen far more distinctly than if the light differed from the yellow ground color of the platinotype paper.

Mr. Ernest Marriage explained a method that was particularly successful in reducing severe contrasts, and which enabled one to get good soft prints from hard unsatisfactory negatives. Take one ounce of a 10 per cent solution of washing soda and add to it five ounces of water. The print is exposed in the frame rather longer than usual, and then transferred to the soda bath (which is used cold) for a few seconds. From that it is developed in the ordinary Ilford Oxalate and phosphate bath, which should be at a temperature of about 100 degrees. The longer the print is in the soda bath the weaker will be the contrast. Although this method may be known to some platinotype workers, there are others who may not know of it, and it presents a way out of the difficulty of getting a hard, if not a "soot and whitewash" negative, to yield a passable result.

Photographing Sound Waves

The *British Journal of Photography* in a recent issue refers to the unexpected results which occasionally surprise the photographer and connected with which is the subject of our caption. Speaking of the photographing of flying bullets it says:

It may be remembered that by means of a clever electrical arrangement in a dark

chamber, the shadow of the bullet was momentarily cast upon a gelatine plate and duly recorded there. But in addition to the shadow of the bullet there appeared in the photographs—and he took many pictures under slightly varied conditions—a clearly defined wave of compressed air in front of the rapidly moving projectile, with extensions on each side, just like the wave we see in water in front of a duck's breast, and another wave behind with a beautiful ripple of air, just like the ripple which follows in the wake of a boat. These effects could hardly have been anticipated, for transparent air is not usually a thing to be photographed. The effect is analogous to the ripple of heated air above a gas flame, which is seen when the shadow of that flame is cast upon a wall by a more brilliant light. Professor Boys has since achieved an equally remarkable photographic feat, which he described and showed the other day at a lecture on "Sound," before the Meteorological Society. During the destruction of some waste explosives at Woolwich, an operation which was accompanied by no small noise, he had noticed the shadow of the rapidly traveling sound wave on the ground. Upon a subsequent occasion he had a cinematograph camera at hand, and the resulting film, which he exhibited at the lecture, clearly showed the strange gray shadow traveling from the center of disturbance. This, it is true, was not an unexpected result, but it bears an analogy to his former achievement, and may reasonably be placed among the curiosities of Photography.

Action of Gelatine Upon Glass

In a paper read before the Academie des Sciences, M. Cailletet describes the action of gelatine upon glass and other surfaces. When a glass object is covered with a thick layer of strong glue, the latter adheres strongly when wet, but upon drying it may be detached, and carries with it glass scales of different thicknesses which have been lifted from the surface. The glass which is thus treated presents a surface whose designs resemble those of frost on a window pane, and have a decorative effect. M. Cailletet made experiments with gelatine upon different substances, and found that tempered glass was easily attacked, as well as Iceland spar, polished marble, fluorspar and other bodies. A sample of quartz cut parallel to the axis of the crystal was covered with two layers of fish glue; after drying it was found that the surface was attacked and showed a series of striæ which were parallel, rectilinear and ran close together, while in the case of glass the striæ were curved. When certain salts were dissolved in the gelatine—namely, those which were easily crystallized and had no action, there was produced on the glass a series of engraved designs which had a crystalline appearance. Thus a solution of strong glue containing 6 per cent of alum gave very fine designs somewhat resembling moss in appearance; other salts, such as hyposulphite of soda, nitrate and chlorate of potash, will produce analogous forms. M. Cailletet told of the strong mechanical action exerted by a layer of gelatine when drying. If a sheet of cardboard, lead or even wire-gauze is covered with a gelatine solution the surfaces are seen to curve into the form of a cylinder as the gelatine contracts. Upon thin glass the effect is striking; when a layer of strong glue is spread upon a cylindrical vessel of thin glass the effort which it exerts when drying is sufficient to break the vessel with explosion. When a plate of thick glass covered with gelatine is examined by polarized light a powerful mechanical strain is observed in the glass, and the value of this effect could no doubt be measured.

The Preparation of Art Papers for Carbon Transfers

The following technique, recently given to an enquirer by the *English Amateur Photographer*, ought to be useful to many carbon workers:

The following method is applicable to all classes of paper: Take of Nelson No. 1 gelatine 4 ounces, and let it soak for two hours in 25 ounces of warm water; then melt over a slow fire in a water pan. Put the gelatine into a jar, and set it in a pan of water over the fire, and thoroughly dissolve, stirring it all the time; when dissolved, add very slowly 60 grains of chrome alum, previously dissolved in 4 ounces of water. Stir all the time it is being added; this will solidify the gelatine. Collect, and restore it to fluidity with as much glacial acid as is necessary. Now take the sheet of paper to be coated ready for receiving the carbon tissue, and pin it at all four corners on a board, and into the center pour a good supply of the mixture; for an imperial sheet, say 2 ounces. Take a brush and roughly go all over the paper with it; then take a flat squeege and press it all over the paper, now backwards, then crossways, so that all the paper receives a good coating, but leaving as little on the

paper as possible, except in the case of rough papers, which require a more liberal treatment. All that is squeeged off the paper may be gathered up and returned to the pot for further use. Two ounces will leave plenty to return to the pot, but it is better to be liberal with it at the start. Hang up the paper to dry, and it is then ready for use.

Stereoscopic Vision and Lantern Projection

In the course of some experiments recently I discovered a very simple means of seeing stereograms in relief by the use of a small prism. It is well known that when a prism is placed before the eye it deflects the light from its course, and makes the object looked at appear in a different position altogether from that in which it really is. The prism I am writing about is one of an angle of 23 degrees, with two faces, each about one inch square. If a stereo slide is held at the usual reading distance and the prism is put in front of one of the eyes with the thin edge toward the nose, it will bring the pictures together instantaneously, the middle one standing out in perfect relief.

This is a useful and inexpensive piece of apparatus, which can be carried in the waistcoat pocket, and is available at all times. For examining slides in magazines, which are printed from half-tone blocks, it is far better than a stereoscope, as it does not magnify the screen lines. This with an ordinary stereoscope has always been a disadvantage.

The prism has another very peculiar property. If a pair of prints have been wrongly mounted as regards right and left, they may be seen correctly by holding the thick edge of the prism next the nose instead of the thin edge as with a properly mounted slide. It makes the picture slightly smaller, but the stereoscopic relief is, nevertheless, perfect. This, I confess, is a little more difficult to do than to use the prism in the correct way. The property comes in very handy when one wishes to see the negative in relief before printing, or a print from the same before being cut and transposed.

One other use for this little instrument and this note is finished. It has been the dream of stereoscopists for years to get a projection by means of the optical lantern which would give stereo effects. Up to the present, however, the nearest approach to this has been the taking of the two halves through different colored screens, through which the stereo transparency has been taken.

Now, if a transparency be made by reduction from the half-plate stereo negative so that both halves are on the lantern slide, these two may be projected side by side, so that a very much enlarged stereo slide is seen on the screen, the size only being limited by the size of the sheet. Then by taking this little prism and holding it exactly the same as for an ordinary slide—but, of course, standing at a greater distance from the picture—the two are made to coalesce easily, and the slide in all its stereoscopic glory is seen even up to life size, the whole standing out in perfect relief.

Although perhaps not practical to the extent of showing such life-like pictures to hundreds of observers in a drawing room or clubroom, it is quite feasible, as the prisms can be had so cheaply as to enable every person to be supplied with one.—*R. Borrow in Photography.*

Inverted Albumen

To make this useful substance, take the whites of three or four eggs, free from yolk or germ, and add from twenty to thirty drops of glacial acetic acid, previously diluted with one dram of water. Stir gently so as not to cause any froth, and put aside for a few hours. The albumen will then be quite limpid and fluid. The cellular tissue which confined the pure albumen has been dissolved, and will be seen floating as a scum on the top. This should be skimmed off with a piece of paper or card, and to the liquid albumen, drop by drop, a solution of potassium hydrate, containing about twenty grains to the ounce, should be added, gently stirring during the addition. A point will be reached when a thickening of the albumen will be observed. The addition is then stopped. It is allowed to stand for about ten to twenty minutes, when it will be found a clear solid jelly, like a strong solution of gelatine. This is sliced into fine shavings, or squeezed through a piece of canvas, and the jelly washed until no more alkali can be detected in the washing water. It is then collected, and as much water as possible abstracted from it by clean linen cloths or blotting paper. It is put into a boiling flask, three or four ounces of alcohol added, and brought to a brisk boil in a water bath for an hour or two, when the albumen will slowly dissolve and remain liquid. This is a solution which has many uses in the laboratory.—*Professor McNinch in Photography.*

The Amateur and His Troubles

By Fayette J. Clute

The Gelatine Mountant

An Ohio correspondent, who has tried the formula I gave a few months ago, complains that the gelatine formed itself into a compact mass on the addition of the alcohol and refused to redissolve even on raising the temperature to almost the boiling point. Fearing that others may have experienced a like difficulty that may lead them to discredit this most excellent formula, I will explain here that the cause of my correspondent's trouble was the use of a too strong sample of gelatine. In my own practice I use the ordinary cooking gelatine of the grocery store. Cox's checker-board brand, I think it is. Another thing, the alcohol must be added very gradually with constant stirring or the same trouble may result.

A Printing Dodge

The new printer recently installed in a local gallery has a dodge that I saw him employ the other day with most gratifying results. He keeps a ball of fresh putty handy and uses it to obscure such portions of a negative as he may wish to hold back in the printing. It is simply dabbed on the glass side leaving a surface very like ground glass as far as light obscuring qualities are concerned. It is easily removed from such portions as it may overlap where not wanted, allowing of the following of definite outlines as well as permitting of a soft blending of the edges where this is thought desirable. I believe a little familiarity with this simple help would make its use seem almost indispensable to the painstaking printer.

Photographing Birds

A friend of mine has fixed up a little "bird studio" that is quite a promising equipment in its way. It consists merely of a short piece of board in front of a small shelter for his camera. The thing is located in the garden about a hundred feet from his sitting-room window, and so arranged that a well-leaved clump of foliage serves as a background for such unsuspecting bird "sitters" as may avail themselves of the repast placed at their disposal. A stout silk thread permits of the shutter being released at the desired moment without the operator leaving the sitting room window from which he watches for subjects. If some good pictures of our feathered friends are not secured before the summer is over it will be a surprise to me.

Bottles Without Labels

I have overhauled my dark room within the last few days and have made a firm resolve that I will mend my ways in at least one respect. Hereafter, when I mix up a solution of any kind I shall immediately supply the bottle with a large, generous label stating just what the formula consists of and the date of its compounding. I will then know at any future time just what the bottle contains and the date will be of value both as a key to the possible condition of the contents as well as instructive as to the keeping qualities of the prepared formula. In work, last week, I found a number of bottles in my possession containing solutions whose nature had entirely escaped me or else were so open to doubt that I feared to use them. It is such an easy matter to forget these things. Even in the case of a "reducer" which I had so labeled, I was undecided as to whether it was after a formula that I had found unsatisfactory or from a similar one which had given good results. With the formula on the label there would have been no chance of a mistake.

Exposures on Shipboard

A few of my readers will perhaps be fortunate enough to find themselves and their cameras aboard some sort of a craft, either on the lake, river or the salt solution, sometime during the summer. But a small percentage will avail themselves of the full capabilities of the situation for picture making. Because the vessel is moving, one fails to realize that time exposures may be given to subjects on board. I have several negatives of yacht interiors, some of which were given twenty minutes' exposure, the yacht gently rolling the while. One taken on a river

boat shows a few passengers seated near the rail with light from the cabin at their backs, shining along the deck. This was made at almost dark and was given fifteen minutes. In the case of the yacht interiors the camera was firmly fastened to one of the steps leading downward from the cockpit. All curtains being drawn to prevent halation, the long exposure was required. The night scenes on the river boat were the most pleasing pictures I have ever made in that line. One can so easily prowl around the deck and select desirable bits and then courteously request such persons as may come within the view to remain in position for a few minutes while the exposure is being made. The idea being to secure only the effect of a night scene, neither a small stop nor full exposure are desirable. During the day, of course, snapshot work may be indulged in, but by fully realizing the fact that with the camera securely placed on some immovable object, time exposures of any duration may be given, one can add greatly to the value and interest of their "trip" collection of negatives.

Does the Darkroom Pay?

A correspondent "down east" asks this most pertinent question in a recent letter. He complains that the constant renewal of solutions, the uncertainty of the condition of those not often used with the attending risk when employed, the cost of the various articles constantly suggesting their necessity, and the inconvenience of the employment of make-shift accessories, makes it problematical as to whether the doing of one's own developing is really a desirable practice unless one has enough of this world's goods to permit of the maintenance of a model darkroom. My correspondent is wrong. There is no question about the matter. Every progressive amateur graduates into a darkroom of his own. Did you ever hear of one cleaning out his own private "shrine room" and worshiping in that of the commercial photographer? I will take my correspondent's charges in their order and trust that he may be made to see the weakness of his case. The renewal of the solutions is simply a matter of cost and at the most is but a fraction of that entailed by the employment of the none too gentle mercy of the "do the rest" man. The condition of the various solutions, after being kept for some time, should not be a hard matter to ascertain. All developers retain their activity as long as the color remains fairly clear, while reducing and intensifying solutions are so easily prepared and their ingredients so cheap that even should there be any great doubt as to their keeping qualities, the preparation of new solutions easily solves the question. As to make-shift accessories and lacking articles thought desirable, my correspondent has only to invest 25 cents in the last issue of the *Photo Miniature*, "Dark-Room Dodges," in order that he may see just how little he requires and how much may be achieved by the expenditure of a small amount of "know how;" in this case, but 25 cents worth.

Silvering Mirrors

Carbon workers, half-tone makers, not to speak of the various purposes for which the amateur may occasionally require them, have all use for mirrors, and such mirrors to avoid double reflection must be silvered on the upper surface. From a letter in the *British Journal of Photography* we extract the following details of a simplified process, originally suggested by Lumiere, modified by M. Izarn and further modified by Mr. P. Everett:

Take 2 drams of silver nitrate stock solution and convert it to ammonio-nitrate, by adding ammonia drop by drop until the precipitate formed is re-dissolved. Add 3½ ounces of distilled water.

In another measure take 80 drops (approximately 74 minims) of 40 per cent formalin.

Pour the solution of ammonio-nitrate of silver into the measure containing the formalin, then back into the original measure, and finally into the dish containing the glass to be silvered. This should be done rapidly, and the dish containing the mirror well rocked until the silvering is complete, which may be ascertained by the precipitation of a black, flocculent deposit and the clearing of the solution. The actual process of silvering takes about two minutes.

For the Professional

While this department is, owing to the heading, supposed to be for the benefit of the amateur contingency, a large portion of the letters reaching me are under headings indicating that the writers are professional photographers. These headings are, as a rule, most wretched samples of the printer's art, suggesting too often that some schoolboy "job printer" has, without even consulting the photographer as to the wording, donated him a supply of letter heads. These letter

heads are in too many cases the only attempt made at gaining publicity. This is all wrong. With the fact fully realized by the men in all other lines and callings that publicity rightly secured is the making of a business, the photographer should awake to the fact. That a part of them are doing so is demonstrated by the fact that Mr. W. I. Scandlin, 345 Sixth avenue, Brooklyn, N. Y., is rapidly working up a neat little business under the title of a "Business Development Bureau." While I do not like to use this department for advertising purposes, I can hardly do other than mention Mr. Scandlin and his work, as I am not competent to advise the lines to be followed in making the advancement that I feel is so necessary in the advertising methods of the average professional photographer. That Mr. Scandlin is competent to advise there is no question. That his services are worth the small fee charged there is abundant proof in the letters received from those whom I have advised to consult him in the past. His long connection with *Anthony's Bulletin* and his active interest in the professional's work for so many years makes him to the photographer what the indispensable ad man is to the individual in the more general lines of business.

Using Printing-Out Paper

With the lengthened days and the summer suns, no small number of amateurs will turn to printing-out papers as a welcome variation from the gas-light prints they have made the past winter. The amateur, who has never used other than these latter papers has perhaps seen and admires certain prints made by others and, with good reason, found a certain charm in the warm tones and detail-giving qualities of the printing-out papers. The worker, on the other hand, who has used both kinds has perhaps tired of the colder tones of the gas-light papers. In securing the best results with papers of the Solio class, a few precautions must be observed. Print all except very dense negatives in the shade or beneath one or more thicknesses of tissue paper. Newcomb's retarding sheets are just the things. In the preliminary washing care should be taken to see that the operation is thoroughly performed; if not, the prints will tone unevenly. Washing should continue until all milkiness of the water ceases. The employment of too "hard" a water will cause the free silver which we are trying to remove to precipitate instead of wash away. Use the sulphocyanide bath recommended by the maker of the paper. Be careful not to add more of the sulphocyanide than the formula calls for, but increasing the amount of gold is sometimes an advantage. Do not try to tone a few prints at a time. If you do, start them in an old bath or first insert a few clippings of the paper in the new bath. It is better to keep the untoned prints until enough are on hand to exhaust a reasonable amount of toning solution which can then be thrown away. Never try to use a bath for more paper than it is calculated to tone. In warm weather you will secure a surface tone very quickly. Do not allow this to deceive you or your prints will have only a sickly yellow color on being removed from the fixing bath. Judge your toning by looking through the print. Make the final washing thorough and lastly, avoid the combined bath.

Exposures with a Hand Camera

An amateur, out from the East, explained to a few of us at the Ferry building, the other day, his method of using a hand camera. He decides in the morning just what his exposures for the day will be. This as a rule is simply the time of the exposure tables for open landscape, *f*-11, fast plate, during the middle of the day at that particular time of the year. His shutter and stop are always kept set at that speed and stop. He comes upon a shaded street scene requiring no great speed of the shutter and it is made with a double allowance of time, immediately returning the indicator on the shutter to the original speed. Another view is found that requires a little more depth of focus and the stop is changed to *f*-16 or *f*-22, only to be changed back to the original stop, *f*-11, as soon as the exposure has been made. By working in this manner the camera is always set at what is a good practical stop and shutter speed for such bits as he comes across that require quick action least they be lost. Besides this advantage, it is always much easier to calculate the desired exposure on the basis of a certain known one for "open landscape" than to try to estimate it with no standard from which to work.

Photographic Lenses. How to choose and use. By a lens maker; 288 pages; profusely illustrated; 75 cents, post free. Tennant & Ward, 103 E. Twenty-second St., New York.

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Wanted—Position as manager of western photo supply house or as traveling salesman. Thoroughly experienced in every branch of the business and well known to the entire trade. Address "Compo," care of Mason, 45 W. Thirtieth street, New York, N. Y.

For Sale—Pony Premo, No. 6, 4 x 5, fitted with B. & L. plastigmat lens and B. & L. volute and iris diaphragm shutters, B. & L. tele-photo attachment and Reflex focal plane shutter, six holders and case, one oil burnisher, one small folding darkroom developing and printing outfit, all new, and in first-class condition; at bargain. Address at once, H. H. Horton, Lynchburg, Va.

For Sale—Folding Pocket Kodak, Goerz lens, automatic shutter; used once; regularly $62.50; first $40 received gets it; lens alone cost $37.50; hundreds of second-hand Anastigmats at unheard-of prices; send stamp for list. Broadway Camera Exchange, 621 Broadway, New York.

For Sale—Large Market-street gallery; reasonable rent, fine location, modern fittings; reason for selling, owner leaving town. Address, Market Street, care CAMERA CRAFT.

Several second-hand bargains in Collinear, Goerz, Zeiss Anastigmat lenses. Send stamp for list. Willoughby, 615 Broadway, N. Y.

Two hundred and fifty-six unmounted views; size 5x7; no two alike; packed in case ready to mail; $3. J. D. Givins, photographer, 1776 Union St., San Francisco, Cal.

Stereoscopic Views—I want to exchange with stereoscopic enthusiasts everywhere. Send me one or more views (unmounted) and I will return you an equal number; we can then arrange for future exchanges. H. W. Beers, 791 North Hamlin avenue, Chicago, Ill.

For Sale—3¼x4¼ Goerz lens, Unicum shutter, $27.50; 4¼x6½ Zeiss lens, Series II A, B. & L. shutter, $32.50; 4x5 Zeiss Convertible lens, B. & L. shutter, $50. T. P. Andrews, 109 Montgomery St., San Francisco, Cal.

I will pay cash or give liberal exchange for interesting unmounted photographs, any size, either amateur or professional. Wilfred C. Tilton, Prairie Depot, Ohio. May, '03.

For Sale—A No. 10 Zeiss Convertible lens, series VII, with diaphragm shutter; new and in good condition; price, $75. Frank Scheuch, 854 Webster street, Oakland, Cal.

For Sale—One of the most artistic little galleries in San Francisco; everything included in sale; will step out at a moment's notice; owner leaving town. Address, O., care CAMERA CRAFT office.

Eastman Kodak Company
ROCHESTER, N. Y.

START RIGHT.

ALFRED WATKINS ON THE FUTILITY OF BROMIDE FOR OVER-EXPOSURE.

In our printed matter regarding the Kodak Developing Machine we have frequently had something to say about the futility of the use of bromide as a restrainer after development has once gotten under way ; have stated that the temperature and length of development give to the operator all the control required. Mr. Alfred Watkins in a recent letter to the British Journal of Photography puts this matter very happily. He says :

"There is nothing whatever in my method which prevents me, should I so desire it—from altering the proportions of the developer before I pour it on, and thus securing the "holding back" power of the lower tones which bromide confers. But experience shows that such additional method of control is only useful for great over-exposure, and as in order to exercise it I must be aware of the over-exposure before I pour on the developer, the conclusion forces itself upon my perhaps over practical mind that I might just as well be aware of the over-exposure a little earlier still, and give the plate a correct exposure instead."

He has hit the nail squarely. If one must know beforehand that a negative is over-exposed in order to control development why not go back just a little farther and start right by exposing correctly.

Time development has come to stay. It would have come anyway but the Kodak Developing Machine has forced the issue. The regularity with which it turns out negatives of a quality superior to those obtained by the old methods is an unanswerable argument. Of course the wide latitude of Kodak Film has helped, because it makes the starting right—the giving of a "correct exposure"—easy. The new method will not give a good negative from a snap-shot with a small stop, made in the woods, nor from a time exposure made upon a sun-lit marine—neither by any possibility could the old method, but within the wide limit of the film, timed machine development gives better printing negatives than are secured by the old method. Thousands are proving it by their work.

PHOTOGRAPHIC COMPETITIONS.

For the benefit of those interested, we will give here each month, a bulletin of the important photographic contests in progress throughout the United States.

BAUSCH AND LOMB OPTICAL COMPANY, Rochester, N. Y., International competition. $3000 in prizes. Closes October, 1903.

C. P. GOERZ OPTICAL WORKS, 52 Union Square, E., New York. Cup competition for professionals. Closes August 1, 1903.

C. P. GOERZ OPTICAL WORKS, 52 Union Square, E., New York. International competition. Open. $1500 cash prizes. Closes June 30th, 1903.

LESLIE'S WEEKLY, 110 Fifth Avenue, New York. Weekly competition, open to amateurs. Prizes, $10, $5, $1.

BUFFALO EXPRESS, Buffalo, N. Y. Continuous contest. Prizes, $5 to $25 weekly.

RECREATION, 23 West 24th Street, New York. Eighth annual amateur competition. Forty prizes in photographic and sporting goods. Closes November 30, 1903.

LADIES' HOME JOURNAL, Philadelphia. Pictures of rooms or churches decorated for weddings. 10 prizes aggregating $200. Contest closes July 1, 1903.

LADIES' HOME JOURNAL, Philadelphia. Pictures of prettily decorated tables. 10 prizes with a total of $225. Closes August 1, 1903.

The Kodak Correspondence School gives the individual criticism of an expert on each negative and print submitted. That ought to be worth a dollar.

Eastman Kodak Company
ROCHESTER, N. Y.

A CONVENIENCE.

EASTMAN'S TRANSPARENT TRIMMING GAUGE FOR MAT-MARGIN PRINTS.

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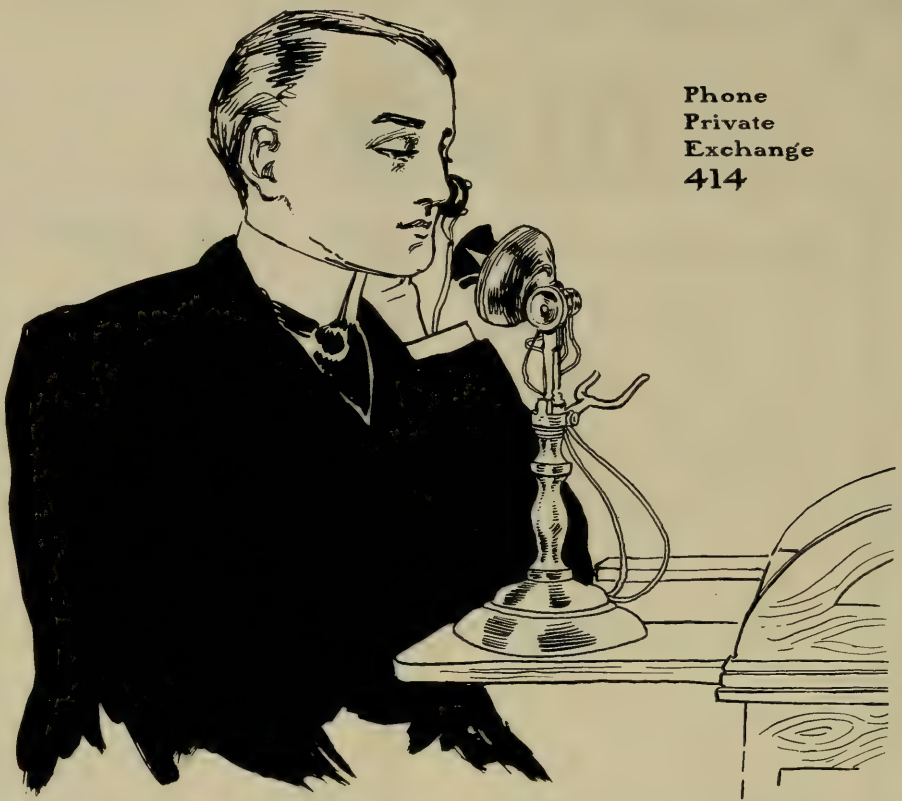

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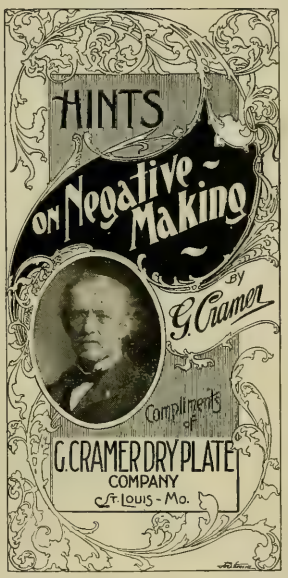

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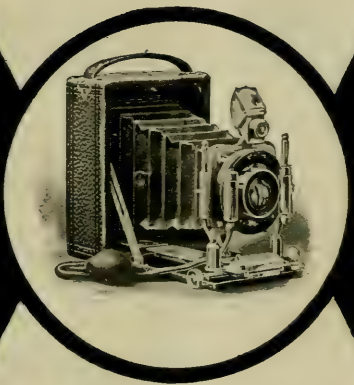

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E1	6x9½	12	1.00
E2	6x9½	25	1.50
E3	6x9½	50	1.75
F1	6x7	12	1.25
F2	6x7	25	1.50
F3	6x7	50	1.75
G1	7x10	12	1.75
G2	7x10	25	2.00
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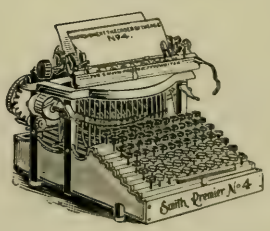

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Notes and Comment.

A very notable creation, which is worthy of the attention of all photographers who keep abreast of the times, is the new Premo Film Pack, daylight loading. This is a compact, light-tight device, carrying twelve films ready for exposure. It is for use in the new Premo Film Cameras, or in any plate camera with an adapter. It fits into a plate camera just as a plate holder does. The simplicity of the device, as well as its ease of operation, must appeal to every one, for it brings to the possessor of a plate camera all the advantages of his superior equipment with the convenience attending the daylight loading film feature. No less an authority than F. Dundas Todd in commenting on the new device says, "By its use the photographer is able to load and unload his camera in daylight, focusing each exposure if desired, and at the same time to be free of the weight of glass plates, which every one knows is a great advantage when touring." The Premo Film Pack is loaded with the film made especially for it by the Eastman Kodak Company of Rochester, New York. Whether the Film Pack is used with a plate camera or with a Premo Film Camera the operation of loading and presenting successive films for exposure is the simplest, quickest, and most convenient ever devised.

The attention of the amateur and professional has been focused upon the new Premo Daylight Developer, by which dry plates that have been exposed may be developed and fixed in daylight with perfect safety and most admirable results. This outfit, which is extremely compact, consists of a transfer box, which accommodates the plate holder, a developing chamber, and a hypo chamber. After the plate holder is placed in the transfer box and the slide withdrawn the exposed plate drops from the holder. The developing chamber is constructed so as to engage this transfer chamber securely, and the plate passes down through the developing chamber, where the process of development goes on and may be observed through a curtained ruby glass. In the same way the hypo chamber is attached to the developing chamber and the process continued. The machine may be used with perfect comfort and safety in any apartment and the results are most satisfactory. The apparatus is all included in a handsome hard wood case.

The Homocentric Lens, which was announced early in the year by Ross, Ltd., London, has reached this country and has been accorded a most cordial reception by the experts. The word Homocentric itself signifies a lens of ideal definition, and the new lens certainly possesses definition to a degree heretofore unattained. In construction the Homocentric lens is symmetrical, being composed of four single meniscus lenses with sufficient space for between-lens shutters. It is made in a series of different relative apertures to suit various purposes. The Rochester Optical & Camera Company, who are the American trade agents for Ross, Ltd., have issued a special lens catalogue descriptive of the product.

While there can be no question as to the value of special plates for special purposes, nevertheless the great popularity of a plate of general utility is attested by the marked success of R. O. C., the Rochester Dry Plate. This product has been on the market scarcely a year, but in point of quantity sold and the satisfaction given it ranks with leading plates. It is a plate that may be used by the amateur and professional with a degree of perfect surety under all conditions. Photographers of every stage of proficiency who wish to profit by the most important advance in the art should make a trial of this plate.

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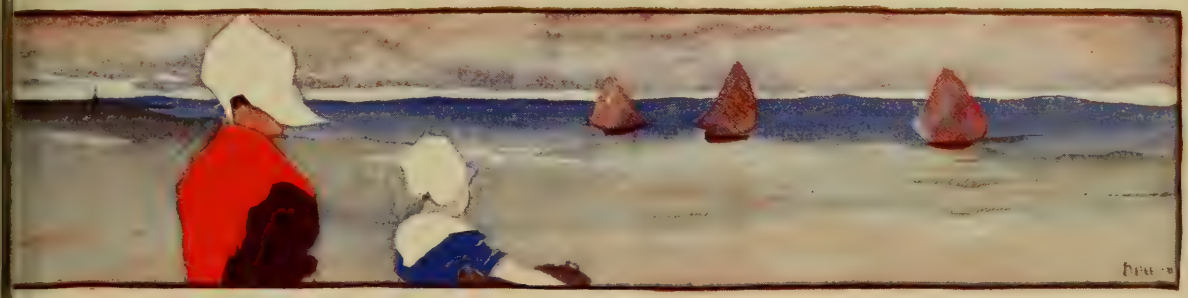

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CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

VOL. VII SAN FRANCISCO, CALIFORNIA, AUGUST, 1903 NO 3

The Photo-Secession—Its Objects

By ALFRED STIEGLITZ.

In order that the photographic world may be disabused of its notion that there is something mysterious and secret about the Photo-Secession, the editor of CAMERA CRAFT has requested me, if possible, to give the readers of his magazine a general idea of the Photo-Secession and its attitude toward photographic exhibitions.

It seems to be generally believed that the Secession is a new thing and that its members are bound together by some iron-clad oath, when, as a matter of fact, there is but the slightest semblance of organization to be found in its body, and its members are free to do as they deem best. In fact, the spirit underlying the Secession has influenced the attitude of its founders for many years, though it is but recently that the sympathy and fellowship for one another of the men and women who have labored for the same ends and have been influenced by the same ideals have been given a local habitation and a name. There was nothing sudden in the banding together of these workers, and the fact of their having chosen a title and adopted the loosest kind of an organization did not in the least degree change the attitude in which each had individually stood in the past. Until the formation of the Secession, which was first formally introduced to the public through the medium of its exhibition at the National Arts Club, New York, it was the individuals who were accused of having adopted a "rule or ruin" policy. If they supported an exhibition it was charged that the standard demanded by them was artistically and morally unhealthy and designed to exclude all but their own work. If they declined to support an exhibition whose standards fell short of the lowest to which they were willing to accord their assent, they were charged with narrowness, envy and exhibiting the proverbial "dog in the manger" spirit. They were damned if they did, and doubly damned if they didn't.

Was it not natural that under these circumstances the men and women who had been in thorough sympathy with one another through all the interminable controversies that had furnished so much material for photographic penny-a-liners and inkspillers, should have so wearied of misunderstandings and misrepresentations that they at length determined to have the game as well as the name of being unwilling "to play along" except upon terms that embodied their hopes and ideals for their art. Therefore, there was formed in deed the organization which had previously existed but in spirit.

Like all Secessions the Photo-Secession is but an active protest against the conservatism and reactionary spirit of those whose self-satisfaction imbues them with

the idea that existing conditions are akin to perfection, and that the human race cannot improve upon the attitude and accomplishments of the good old days. This stick-in-the-mud policy, this complacent self-satisfaction, this belief that the standards of yesterday must be the standards of all time to come, this spirit which Matthew Arnold characterizes as barbarism and Philistinism, has been the bane of all efforts toward "sweetness and light." The object of the Photo-Secession is not, as is generally supposed, to force its ideas, ideals and standards upon the photographic world, but an insistence upon the right of its members to follow their own salvation as they see it, together with the hope that by force of their example others, too, may of their own free will see the truth as they see it. This hope can never be realized by weakly accepting standards in which we have no faith, nor by compromise, which never yet has satisfied either party to a question. If the "way" we have chosen leads nowhere we have but fooled ourselves; but if ours is a path toward truth, then it argues but a weak faith on our part willingly to follow any other.

Our attitude is not one of pique or envy, nor do we intend to hold aloof from photographic activities that display an earnest desire for improvement, although it has been forced upon us to insist upon our own standards in so far as our own pictures are concerned. The sham of so-called high standards and the exploitation of the names of painters, known and unknown, who have been induced to pat Photography patronizingly upon the head, the ministration to the vanity of individuals, the substitution of injudicious praise for honest criticism, the complacent acceptance of the mediocre as perfection, all have injured Photography and have forced the issue. Those who charge us with an unwillingness to take part in exhibitions which are not run under own direct or indirect management speak without knowledge. During the past year, the first of the organized existence of the Photo-Secession, we have not declined a single invitation to contribute to exhibitions great or small throughout the world—Turin (Italy), St. Petersburg (Russia), Paris Photo-Club Salon (France), Wiesbaden Art Gallery (Germany), L'Effort (Belgium), Hamburg (Germany), Toronto (Canada), Denver (Colorado), Minneapolis (Minnesota), Cleveland (Ohio), Rochester (New York)—each has received a collection of the work of the Photo-Secessionists assembled often under great difficulties and inconvenience. It has been our policy to refuse none of whose earnestness we were assured. It is true that certain conditions were first insisted upon in order that no action of ours could be construed as a compromise with our principles. We demanded, first, moral assurance of the good faith and high intentions of the management of all such exhibitions whose previous history was not sufficient guarantee of their endeavor; second, the right to send a collection which would be accepted as a whole without submission to a jury; third, that such collection be hung as a unit and be catalogued as "Loan Exhibition of the Photo-Secession"; fourth, that the shipping expenses be borne by those who had extended the invitation. We have yet to hear that any of the societies mentioned had found aught to regret in their acceptance of our seemingly high-handed and dictatorial demands. The standards by which the Photo-Secession selected the work of its members which went to make up these collections was in each case far more severe than that of the jury of the respective exhibitions, and it was, no doubt, because of these high standards that our work attracted the attention it did. It must not be understood that membership in the Secession denies the right of the individual to exhibit personally at any exhibition. On the contrary, the individual is free to follow his own inclinations, except that in such cases where the council feels

that in any proposed show the interests for which the Photo-Secession stands would be jeopardized by any support whatever, it so advises its members. There is no compulsion to accept this advice, though the thorough sympathy amongst its members is probably sufficient to deter any individual from according any such exhibition his support.

These few remarks generally explain the attitude of the Photo-Secession toward exhibitions not held under its auspices. There are no hard and fast rules to which we must adhere. New conditions would bring with them new changes. For the present it may be assumed that such is our stand. It is our intention to encourage with our support whenever possible, and we shall feel no grievance, if those who deem our demands extravagant, shall refrain from extending to us their invitations. We are but a handful who, while denying to no man nor body of men the right to follow their own light, yet insist upon our right to do likewise.

Third Salon is Booming

The communications received by the management of the Third San Francisco Photographic Salon continue to be of the most encouraging nature. The responses have been particularly good from foreign countries, and from present indications the exhibit of foreign work will be greater than at any prior American exhibition.

Full information with blanks and instruction sheets may be had by addressing the Chairman of the Executive Committee at the Academy of Sciences Building, San Francisco.

OVER THE HILL

EUCALYPTUS
No. 2 pinhole; exposure, five minutes
by H. D'ARCY POWER, M. D.

Forest Glade and Sunshine

(A Pinhole Article)

By H. D'Arcy Power, M. D.

Illustrated by the writer

In my last communication to Camera Craft on the use of the pinhole, I promised to return later to some of its special applications, and I now propose to fulfill my pledge in connection with the photographic presentation of woodland scenery. There is perhaps no aspect of nature that is more many-sided than the forest. Its infinite variety of form and its ever-changing mood are a constant challenge to the poet and the artist. Take the solemn silence of a great pine forest, with its endless reduplication of simple forms, its floor of needles, unvaried but restful in its broad expanse, and compare this with a wood of deciduous trees, oak and elm and birch—with little flower-decked clearings, buzz of insect life, glints of sunshine, and song of birds. Not only is there this essential difference in the fundamental forms of woodland scenery, but the diurnal variations are startling in their variety and intensity. On a recent vacation at Pacific Grove I was standing among that remarkable group of weird and twisted oaks painted by Keith. A soft, sunless light filtered through the canopy of green and bathed alike the straight shafts of the pines and the fantastic groinwork of the oaks, so that together they gave not only the appearance but the very air and sentiment of a solemn gothic fane. And yet while I was vainly trying to catch on the plate that chastened beauty, a shaft of sunlight broke through a rift in the clouds and my cathedral was vanished and gone. The twisted boughs caught the patches of living gold at a thousand angles, the light darted hither and thither, relieved by shadows, darker by contrast. The grove was like a

A soft, sunless light

Christmas tree gaudy with jewels, and I then knew why another artist had called the group the "Fairy Oaks."

These entrancing transitions are a wonder and often a despair. They call for plates, plates, plates, and when we have the product, an adequate realization of our failure fills the waste basket. I know well that many workers, notably the English, have succeeded in giving us beautiful renderings of such scenes, but taken as a whole and viewing the mass of woodland photographs, it is apparent that the successes are only occasional. Especially is this the case in the rendering of sunshine, and it is just these sunlit vistas with gold on trunk and spray that are so attractive. The average photograph of such scenes is usually a distracting assemblage of high lights, massed here, scattered there, but omnipresent and confusing, destroying all breadth and giving some of the form but none of the spirit of the original. What is the reason of this? There are several. The first and most important is that the curved surfaces of leaves and twigs act as so many mirrors, each shooting a tiny beam of strong light on the lens. As such beams do not come from the whole leaf, but only from a small surface of it, they produce on the plate nothing but a detached spot of light. Secondly, the chief charm of a sunlit forest is not in the reflected light, but in that transmitted through the leaves, and just because of their beautiful emerald color, the plate, insensitive to green, takes no record of them. By thus recording what is not wanted and not recording what is most lovely, we are left with an entirely false scheme of lighting. Thirdly, the gamut of tones is very long in the woods, from the deep shadows in the brush and beneath dark and closely placed trunks to the high lights on a sunlit leaf or flower, we have every possible gradation.

—gold on trunk and spray

—deep shadows in the brush

To adequately deal with these conditions requires great care and judgment, and the best we can do is a compromise.

If such be the difficulties of woodland photography, how may they best be overcome? Take first the question of scattered reflected lights. These, of course, are most pronounced when the sun is shining. In the suffused light of a cloudy day they cause little trouble, and though under such conditions the forest may seem

silent and sombre, it is still capable of yielding most charming pictures. Differences of local color show up to much better advantage, and just as an overlighted picture that fails to impress, may reveal unexpected beauty in the shade, so may we find beauties under a cloudy sky that disappear in the glare of the sun. Some of the illustrations are examples of this type of lighting, and there is a harvest for all who seek pictures under these conditions. But, sunlight, while it destroys soft gradation, has beauties of its own that demand the best of our efforts. The scattered high lights that are its inevitable accompaniment must be eliminated. If our pictures have been made with the lens we can remove them from either positive or negative. A platinum print can be spotted with a little lamp-black mixed with Payne's grey until these distracting specks of white paper shall have acquired their proper tone and the general gradation be such as an artist would give it. Or, taking such a spotted print as a guide, the offensive high lights may be eliminated from the negative by the retouching knife. Furthermore, and this was the chief reason of my writing this article, the spotting effect may be largely eliminated by using the pinhole in place of the lens. The pinhole, especially the larger sizes (Nos. 1 and 2 of my system), gives a much more diffused image than the lens and merges these annoying points of light into one another. The result is a rendering of sunshine such as the lens can never give. I have recently repeatedly taken woods and trees by both lens and the pinhole under these conditions, and in every instance the latter has given the truer and more satisfactory rendering. I give examples which, while not put forward as of special pictorial merit, do, I maintain, reproduce the spirit of that which they portray. Thus the contrasting masses of light and shadow in No. 3 and 4 give the sense of sunshine in a manner that a lens picture would not realize. Speaking of the rendering of sunshine, I cannot emphasize too strongly the importance of selecting subjects in which the sunlit parts are broadly massed against a body of shade—otherwise disappointment will certainly follow. The second difficulty, namely, the representation of light passing through a woof of green leaves, can be overcome by the use of plates specially sensitized for green, but even this will not succeed unless backed by the use of a ray filter of pretty dark color. I have not tried it, but it ap-

—the suffused light of a cloudy day

pears reasonable to believe that a green filter would give the best results. I have used Seeds ortho-landscape plates and a bichromate cell in connection with a pinhole, and the large picture was taken in this manner. Lastly, the long gamut of tones to be represented in these scenes requires very careful exposure. Nearly all the colors are non-actinic, and in using a light-meter it is well to consider the subject value as at least that of three times the normal. Over-exposure is a much smaller evil than underexposure, and if as a result we lose detail in the high lights, the same may often be recovered by local reduction. I would therefore summarize by saying:

First—Use a pinhole, a large size by preference.
Second—Choose subjects with broad effects of light and shade.
Third—Use ortho-chromatic plates and a ray filter.
Fourth—Exposure for the shadow, and locally reduce the high lights.

Why I Like Rodinal

By Professor J. Kramering, *Czernowicz, Austria*

Rodinal is such an excellent preparation that I cannot praise it too highly. Although having experimented with many developers, I was always a stanch believer in ferrous oxilate for plates and Stolze's bromide papers. I was loth to change until, out of curiosity, I sent for a half litre bottle of Rodinal and it was but a short time when I became aware of its great advantages.

As long as there is chemical action and reaction it is obviously essential to banish the use of hard water in connection with developers, otherwise it is compulsory to frequently replenish with fresh water.

This is entirely different with Rodinal, as Rodinal contains only traces of carbonic alkalies, distilled water is not essential for the dilution. Boiled or rain water is preferable when convenient, but ordinary tap or well water answers quite satisfactorily. The simplicity of this developer is remarkable; all that is necessary is the addition of from 20 to 50 ounces of water to one ounce of Rodinal. The exact amount of water depending upon the season and the purpose. When required, a small amount of bromide (10 per cent solution) may be added.

If used in developing plates and films, this developer can be renewed by the addition of about 10 per cent of a solution of sodium sulphite. Label a bottle "stock solution," fill it to the neck and close with a rubber stopper.

Irrespective of the fact that it is very economical to work with Rodinal, it certainly makes itself very acceptable, eliminating as it does to a great extent all the objectionable features of weighing, measuring and mixing; at the same time obtaining as good, if not better results. I have, therefore, definitely discarded the use of other developers.

Last summer I developed in the above proportions, 300 plates with beautiful results, also fifty large (30 x 40 centimeters) Stolze's bromide papers, obtaining exquisite, black-gray, black and black-blue tones. Hence, after this experience, I must advise every one to use this wonderful offspring of Paramidophenol—Rodinal.

MISSION SANTA BARBARA
By OSCAR MAURER

The Song of the Monastery

By Percy Montgomery

Gold-tipped in the sunlight's glow;
A garden wall and a bit of bloom
And the soul of long ago:
A reddening rose above the door
From whence no singing comes;
A garden of weeds in the evening shades,
Mantling the ancient stones:
A home forgot amid the plain
Within whose walls the shadows lie
Silently dreaming in its peace
Here where the swallows fly.
Over the low-eaved roof of tile
With fond embrace, the running vine
Casts its perfume over all,
Nor heeds the deathlike hand of Time.
Once more with purpose brave and true,
Treading the court with airy step,
The spirits of the past are come
Here where the toilers bitterly wept:
Out of the world of yesterday
Back to the home they love so well
Stealthily in the fading light
They listen to the phantom bell,
And the evening's winds from far away,
Wandering over the garden wall,
Sing them again the song of the past—
The song of the Monastery old.

—past the magnificent new Maine

The Sailing of the Monongahela

By Enrique Muller

With copyrighted photographs by the writer

Uncle Sam is beginning to be a great sea captain. From a baby fleet of battleships his force has grown until now he is receiving invitations from all the big countries who wish to entertain his ships, and incidentally to give their own sailors an object lesson in the handling of warships. The training of the American man-o'-warsman has been demonstrated so successfully during recent years that the nations of the world have no hesitancy in following the lead of Uncle Sam, and the instruction given apprentices in some foreign countries is now modeled closely after his system.

One of the most interesting vessels in the service is the old training ship Monongahela. This vessel was in Farragut's fleet during the Civil War and is now the only full-rigged ship in the navy. She is in charge of Captain C. P. Rees, who was executive officer on the Olympia during the battle of Manila bay. Twice a year this old time man-o'-war sails from the Brooklyn Navy Yard with 250 young landlubbers and a sailing crew of 150 men, whose duty it is to instruct the youngsters in the arts and crafts of peace and war on the ocean. For five months the vessel cruises about the West Indies until the landlubbers, most of whom have been

recruited from interior states and who never saw the ocean before, are experienced sailors and ready to take their places in the big ships of the navy.

The sailing of the training ship is an interesting sight and, although I have witnessed it frequently, I never tire of the thrill that always accompanies the departure of a vessel for an extended cruise.

I was on board the navy tug one day last winter with my 11 x 14 camera to take

—town came the big foremainsail BY ENRIQUE MULLER

THE ALABAMA

photographs of the vessel when under full sail at sea, but it was very cloudy, and a stiff, icy northwest wind made it difficult for me to make good pictures. We passed out into the East river, past the magnificent new Maine and the Alabama, while the crowd of men and women waving good bye to son, husband or sweetheart from dock faded away.

As soon as we passed under the Brooklyn bridge, the men were sent aloft to bring up the topsails again, which had to be lowered so as to pass safely under the bridge.

By the time that all the upper rigging, with royal-yards and sails, was brought in proper position again, we were well down the bay with only a few staysails set, so as to keep the ship steadier, while in tow; but no sooner did we pass Sandy Hook than the towing line parted and the Monongahela had now to depend on her own sails. This she did very quickly, as down came the big foremainsail.

At the same time the fore and maintopsails were spread, and the men were pulling with a good will at the yard-arm. As the big sails now caught the wind the vessel was leaning over considerably—a sight to see,—but it was impossible for the tug to follow, and soon she was speeding rapidly away on her course.

It is not an easy task to take photographs under such unfavorable conditions, as the tugboat rolls fearfully in the swell, making it almost impossible to use the instrument; but the three pictures with this article will give some idea of how the training ship sails.

President Webster Goes to the National Convention

Proceedings of the Photographers' Association of California

As the special representative of CAMERA CRAFT, President F. A. Webster of the Photographers' Association of California will attend the annual convention of the Photographers' Association of America, which meets in Indianapolis on August 4th. He goes to complete the fight so long waged by CAMERA CRAFT in its effort to carry the Convention to California for its annual meeting in 1904. He will bear invitations from the Photographers' Association of California, the Mayor, Board of Trade, Chamber of Commerce and Merchants Association of San Francisco, the Mayors of Sacramento, Oakland, San Jose and Los Angeles, and many prominent state and county organizations. No effort will be spared to convince the National body of California's desire to entertain the Convention, and as no other city can present the arguments advanced by San Francisco there seems but little doubt that the meeting in 1904 will convene in California.

At the last meeting of the state association held on July 7th, a strong resolution was adopted in which the organization pledged its earnest support to the National association.

Matters of great interest came before the meeting, which was remarkable for the businesslike manner in which affairs were handled. The new constitution and by-laws reported by the special committee were adopted and passed to print. The name of the organization is now the Photographers' Association of California, instead of the Professional Photographers' Association of California, a great improvement. Another member, to be selected by the officers of the association, was added to the Executive Committee, making an Executive Board of five.

The committee on the state convention submitted its report in which the

Mechanics Pavilion was named as the exhibition hall and October 27th-29th inclusive as the date. The report was adopted and active work has now commenced upon the convention.

It was decided to accept the invitation of the Photographers' Association of the Pacific Northwest to send a collection of pictures to that convention at Salem, Ore., September 23d-26th, and Mr. George Habenicht was appointed as the chairman of a committee of three to make the necessary arrangements.

The most pleasant meeting in the life of the young association was the dinner tendered the members by the manufacturers and their representatives, dealers and employing photographers of San Francisco, Oakland and Alameda. Mr. H. G. Vaughan presided as the chairman of the committee having the matter in charge, and the eighty-one guests who attended will remember the occasion with pleasure for many years.

For the next meeting, August 4th, a most pleasant program has been arranged. At this meeting the committee on permanent quarters will make its report and it is hoped that it will not be long before the association is located in its own clubrooms. T. P. Andrews, the chairman of the committee, has been working hard upon the problem.

Newspaper Artists' Exhibition

A complete exposition of the art of illustrating newspapers and magazines by the artists of San Francisco will be given in the Maple Room of the Palace Hotel in the near future. Among the artists who will send some of their best pictures for exhibition there will be: W. H. Matthies, R. G. Russom, T. A. Dorgan, Marie Feiling, C. S. Donnelly, R. H. Bassett, H. N. Bunke, M. W. Newberry, J. O. Brubaker, W. A. Coulter, R. O. Yardley, Theo. Langguth, M. H. Harris, G. A. Bronstrup, Merle Johnson, R. Thompson, Oscar M. Bryn, Bert A. Igoe, Haig Patigian, W. L. Cook, Henry Raleigh, John E. Sheridan, C. D. Pitchford, C. W. Rohrhand, J. M. Kelly, Maurice Del Mue, Dan E. Sweeney, J. Kahler, A. M. Nelson, Jack Rodgers, Geo. E. Parmenter, W. Francis, Stanley Clisely Arthur, William Stevens, J. W. Rennell, Laura E. Fosters, Geo. Kiddie, J. A. Cahill, Ralph Springer, H. G. Peter, S. Schuhl, A. Fulton and Frederick W. Small.

The Next Chicago Salon

The Fourth Annual Salon of the Chicago Society of Amateur Photographers will be held in the Art Institute, Chicago, Illinois, from December 29th to January 24th, inclusive, 1903-4.

The jury of selection will be wholly photographic, and is composed of the following persons: Dr. F. Detlefsen, Mr. J. H. Field, Mr. Louis A. Lamb, Mr. F. Dundas Todd and Mr. Marshall Waite. All pictures submitted must reach the Art Institute on or before December 15th, 1903. The members of the Photo-Secession have promised a superior Loan Exhibit.

How to Develop, With After Processes

By F. Leach.

So many new subscribers have recently been added to Camera Craft's *subscription list that the publishers are led to believe that the frequent requests for a serious article on developing come from a large number of readers who would really welcome such a treatise. To gratify this seeming want we have arranged for a series of articles by Mr. F. Leach, a well known writer, and present this, the first article, with the statement that it is not calculated to interest our old subscribers, but is simply for the new devotees who are just starting on their journey toward success. We feel that this space is well spent and are sure that our old friends will not begrudge the effort we are making to instruct the novice. Should our old friends number among their acquaintances any beginners in Photography, we trust that they will draw their attention to this series.*

FIRST PAPER

Perfect negatives are seldom seen. An element of uncertainty always enters into the production of the photographic negative, and perhaps it is this very uncertainty that gives photography its peculiar charm. With the advanced professional photographer the uncertainty of results is reduced to a minimum, but still it exists to some extent. After the amateur has advanced beyond the first stage, he begins to study photography with the desire to learn everything possible about it, and to apply this knowledge to the production of pictures, that shall, as far as possible, approach perfection. So negative making is one of the most important steps in photography. A good negative will make a good print on any kind of paper, and it is therefore important that the art of negative making should be fully understood. In these articles the author has endeavored to point out some of the chief defects in negatives, explaining their cause and giving the best rules for their prevention.

In the production of a good negative, the first difficulty that confronts the amateur, is the subject of correct exposure. The question is often asked: "Can an exposure table be arranged that will indicate the correct exposure, for all subjects, at all times of year, and under all conditions?" Such a table is not to be had, but exposure tables have been published, which give approximately correct exposures for out-door work. By using one of these tables, the photographer can tell very nearly how much time to give the subject, under varying conditions of light. With indoor exposures it is impossible to give any set rules regarding the length of exposure; experience alone can teach. Many successful amateurs keep a book in which they set down a record of all exposures, giving the conditions of light, size of stop used, brand of plate and time of day. If a good negative is the result, then the same exposure will be given again under the same conditions.

A great many things govern the length of exposure. Distance from camera to subject influences the time of exposure to a considerable extent. Strange as it may

seem to the novice, it is a well known fact that distant views can be photographed in a much shorter interval of time than is required for subjects nearer the camera. The subject to be photographed must also be taken into account when calculating the proper length of exposure. Cloud pictures require much shorter exposures than landscapes. This fact is known to every one who has ever tried to photograph clouds and landscape at the same time, on an ordinary dry plate. The time required for the clouds is so much shorter than that required for the landscape that the sky is always over-exposed.

Color of light enters to a large extent in the calculation of photographic exposures. A white light in which there are many violet rays is very fast, and will quickly affect the sensitive emulsion of the photographic plate, while red light in which there are red or yellow rays has but little effect.

It will be readily seen that, when other factors influencing exposure are taken into consideration, such as size of stop, brand of plate, time of day, and season of the year, the problem of an absolutely correct exposure table is a difficult one. But, although these tables are not absolutely correct, yet they so nearly approximate the correct exposure that they may be said to answer every purpose for which they were intended.

Now, when the amateur has given a proper amount of study to this important subject, and his failures from incorrect exposure have been reduced to a minimum, he will still find a knowledge of how to proceed valuable, and as there are many small factors entering into the treatment of incorrectly exposed plates, each division will be taken up separately in case of error.

WEAK NEGATIVES

A weak or thin negative is produced from one of three causes; under-exposure, under-development or over-exposure. Perhaps the term "weak negative" may be somewhat misleading, when applied to thin negatives due to the first cause, under-exposure. Negatives of this class are very harsh and contrasty, the shadows lack detail, and present the appearance of clear glass. When the plate is exposed in the camera, sufficient light should be admitted to cause the proper re-action on the emulsion of the dry plate. Thus the rule is often given "expose for the shadows." The under-exposed plate, if developed in the regular full strength solution, will produce a negative of such harshness as to be of little value. If the same plate is subjected to proper treatment it will yield a negative of good printing quality.

The writer does not mean to convey the impression that all errors of exposure can be corrected in development. This is by no means the case. But he does assert that great improvement can be made by treating improper exposures in the right way.

Nearly all the modern developers are derived from benzine, by chemical processes. Widely speaking, they may be divided into two classes—hard and soft working developers. Pyro and hydrochinon belong to the former class, and metol and eikonogen belong to the last. Amateurs are sometimes advised to get a good developer and stick to it. This is not always a safe rule to follow. Hydrochinon is an excellent developer for properly exposed plates, but at the same time it will not produce good results if used for snapshots or brief time exposures. In view of this fact it would seem better for the beginner to select a good developer from each class. Pyro is admitted to be the favorite. Although its use in photography

dates back to the time of Scott Archer in 1851, it has held its own in spite of the many developers that have since been introduced. Let us suppose that the reader decides upon pyro for general use; he will then try to find a good developer for special purposes. Eikonogen or metol will solve the problem in the second class. Perhaps metol will produce better results than eikonogen, indeed, some authorities claim that metol is the best developer that has ever been introduced, for developing snap-shots and under-exposures. In developing under-exposures with metol we will suppose that the plate is known to have been under-exposed. Perhaps the plate was exposed on a moving object where only the briefest exposure was possible; in this case the object is to so handle the plate during development as to secure all possible detail in the shadows. The following two solution developers are recommended:

(a)

Water	4 ounces
Sodium sulphite (pow'd)	2 drams
Metol	1 dram

(b)

Water	5 ounces
Carbonate of potash	4 drams

The solution, (a) and (b) are to be kept in stoppered bottles and mixed only for immediate use. For a badly under-exposed plate, take four drams of stock solution (a), four drams of (b) and ten ounces of water. This makes a very weak solution; it acts very slowly, and has little or no tendency to fog the plate. After placing the plate in the tray, flow on the developer, and then rock the tray for a few seconds in order that the plate may become entirely covered with the solution. In about fifty seconds the highlights will begin to appear, and a little later the shadows will make their appearance. Continue to rock the tray. Very gradually the detail in the shadows will begin to appear, and development should be continued in this weak solution until all possible detail has been secured; this may take from twenty minutes to one-half hour. But the plate must not yet be taken from the developer, or the negative will be very thin, not having sufficient density to give a good print. Therefore development must be continued for the sole purpose of securing density. Pour the weak developer into a bottle, and finish the development in a very strong solution, made by taking four drams of (a), four drams of (b) and two ounces of water. It will be a good plan to add two or three drops of a 10 per cent solution of bromide of potassium to this solution. After the proper density has been obtained the plate is fixed and washed.

Does this process seem complicated? It is not, although a good deal of patience is required to carry it out. The half hour of time spent in thus coaxing out detail will be fully repaid, when the finished negative is compared with one developed by the ordinary method. A large proportion of the prints submitted in all amateur prize contests are made from harsh, contrasty negatives. The negatives are the result of under-exposure, followed by development in a full strength solution.

The case just described is one where the operator knows that under-exposure exists, but it often happens that he is not so certain, and in this situation he must proceed on slightly different lines. If there is any reason to suspect the existence of under-exposure it would be wise to use the metol formula. Development may be

started in a full strength solution, (a) four drams, (b) four drams, and two ounces of water. In case of correct exposure the highlights should begin to appear in about ten seconds, and if at the expiration of this time there is no visible image, it is safe to conclude that under-exposure exists. The plate must then be taken from the developer and immersed in a weaker solution until the detail is well out. The subsequent operations have already been described.

STAND DEVELOPMENT WITH METOL OR GLYCIN

Stand or tank development has been rapidly gaining in popular favor as a convenient method of developing regardless of the time of exposure, and especially for under-exposed plates. Where only one plate is to be developed, the plate is taken from the holder and placed in the tray containing the developer. After the tray has been covered so as to exclude all light, the operator may leave the dark room until the plate is developed some hours later. Glycin is one of the favorite developers for this work, being a very slow working developer, and for this reason it has been but little used by photographers. It is urged that on account of its slowness of action it is unsuitable for all practical purposes. It is obvious that this objection has no weight, when glycin is used for stand development. Glycin has the advantage over metol, in that it gives abundant detail, and great density at the same time. The following formula will be found suitable for stand development:

Water (hot)	1 ounce
Potassium carbonate	50 grains
Sodium sulphite (powdered)	12 grains
Glycin	10 grains

After this is thoroughly dissolved add 10 ounces of cold water and the developer will be ready for use. While the above formula is of proper strength to fully develop a normal exposure in from twenty minutes to one-half hour, yet with badly under-exposed plates it may take anywhere from three to five hours to complete development. As a developer for this process, metol ranks next. In selecting a metol formula for tank development, it is best to choose one containing a weak alkali, to avoid risk of spoiling the plate by chemical fog. Bicarbonate of soda appears to be the best alkali to use in this connection.

Water	18 ounces
Sodium sulphite (powdered)	3 drams
Metol	1 dram
Bicarbonate of soda	3 drams

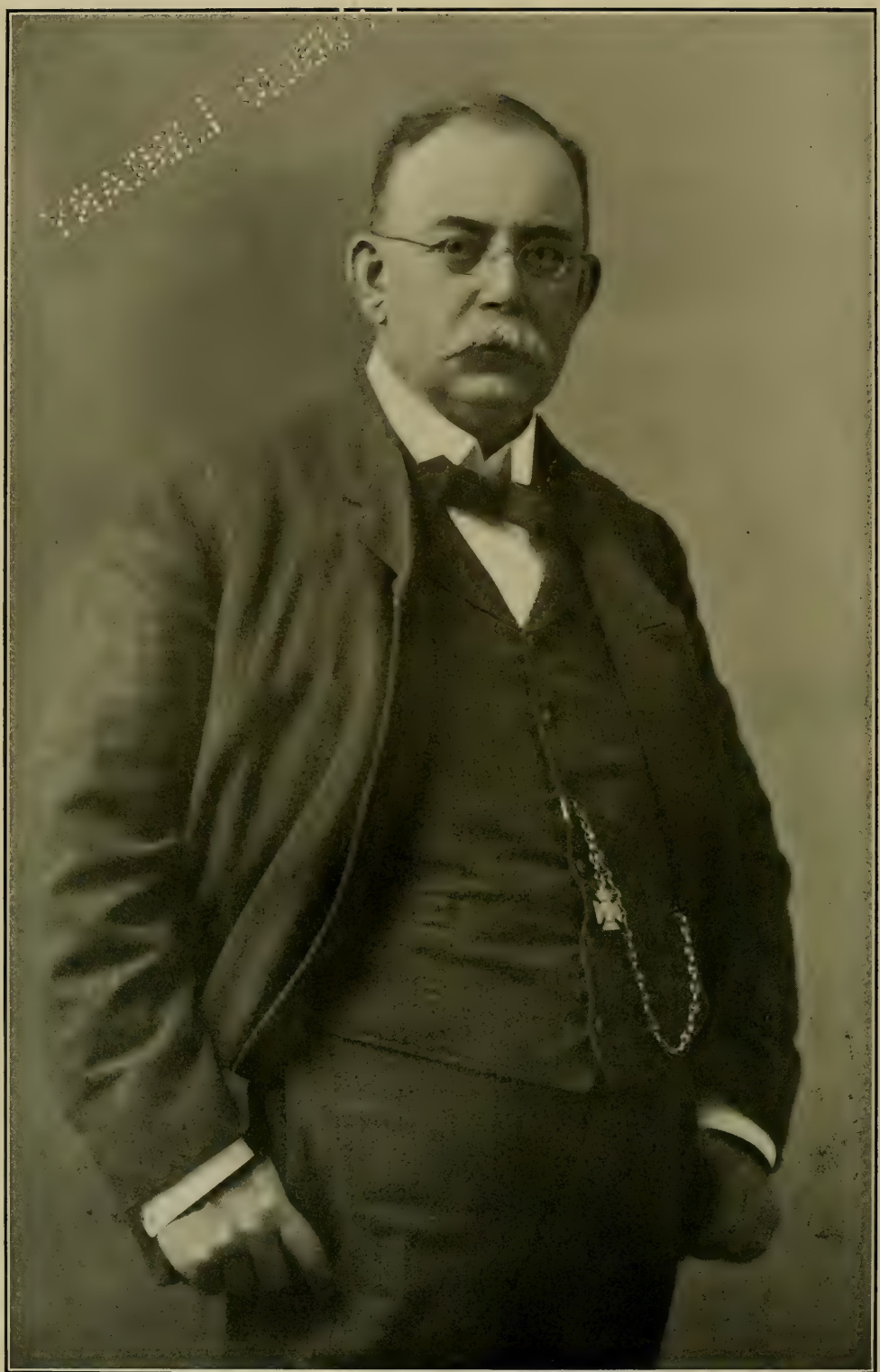
A plate may be left in this solution for a long period without the slightest fear of injuring the film. Perhaps the greatest advantage of tank development, is in cases where a very large number of plates are to be developed. Developing tanks with grooved sides can be obtained at most any of the dealers in photographic supplies. These tanks hold from twelve to twenty-four plates. Plates can be placed in the tank, the solution poured in, and then the plates will not need further attention for an hour or more. At the end of this time a plate may be taken from the

tank, and examined by the light from the dark room lamp, in order to note the progress of development. There need be no fear that plates will become too dense from over-development, especially if the metol formula is used. A very important thing to consider in tank development, is the temperature of the developer. It should not be allowed to rise much above 70 degrees Fahrenheit, otherwise the developer will have a tendency to soften the film and thus injure the negative. Plates which have been developed by this process should not be fixed in the ordinary plain hypo bath; for the reason that if the film has already begun to soften, it will most likely become frilled or blistered before the fixing and final washing has been completed. The fixing bath given below will be found excellent for plates developed by the tank process.

Hypo	1 pound
Sulphite of soda	1 ounce
Water	4 pints
Chrome alum	1 ounce

(*Continued in the September number.*)

PRESIDENT ROOSEVELT BOARDING THE TORPEDO BOAT PAUL JONES AT OAKLAND FOR HIS TRIP TO THE MARE ISLAND NAVY YARD



THE LATE FITZ-WM. GUERIN
From a portrait by Taber
taken shortly before his death

Death of Fitz Wm. Guerin

A Few Words of Appreciation

Fitz Wm. Guerin, one of the most prominent figures in American Photographic circles, died in San Francisco July 11th, at the age of 57.

When I first met Fitz Guerin it was during the strike and turmoil of a national convention, shortly preceding the ballot upon the selection of the next convention city. San Francisco's champions had labored long and faithfully to obtain the convention, but the Buffalo forces, through superior numbers, seemed to be making the winning fight. On the evening of the day preceding the ballot some one introduced me to Mr. Guerin and I immediately began to interest him in the fight for California.

"Of course I'm for you," said he; and from that moment he was one of California's warmest supporters. When the issue became sharply drawn it was seen that Buffalo had the game and San Francisco gracefully withdrew her claims. But this did not moderate the disappointment of the California delegation, and they gathered in a little group to gather what comfort they could from the outcome. At this juncture Mr. Guerin approached the group and said:

"Never mind, boys, you can't get everything you want in one year. Perhaps next year I'll come to California and help you to make the fight.

And this promise he kept, for, although one year passed without his support, he came to California in time to participate in the organization of the new State Association, and at the time of his death he was occupied in planning for the battle to be made at Indianapolis next month, and assisted in the organization of the Photographers' Association of California. He was a good friend to California, and during his stay in the state earned the friendship of every photographer he met.

Mr. Guerin was born in Dublin, Ireland, and came to this country early in life. At one time he was president of the Photographers' Association of America and was always prominently identified with its movements. For years he was one of the most successful photographers in St. Louis and founded the Guerin School of Photography. His record as a photographer and an expert in flashlight pictures is attested by the fact that nineteen prizes were awarded his pictures, seventeen of which were first medals.

A wife and four children survive him.

C. E. A.

THE SENTINEL, MONTEREY
by A. H. COWAN

Trees Against the Sky

By A. H. Cowan.

Illustrated by the writer

Some of the most beautiful trees I have ever seen have been perched high upon a cliff above the sea, with nothing behind them except the bare expanse of the ocean, and the choicest of all these trees are the cypresses of Monterey, California. Many's the plate I have exposed upon these ancient guardians of the shore, and while I have accomplished some very good pictures, it is hard to be satisfied with what I have done. The two pictures reproduced herewith represent the best of my collection. They exhibit little of the harsh contrast of the average picture taken under the same conditions, and the reach of the ocean is visible in both, a feature entirely lacking in many photographs I have seen.

Photographers ask me about backed plates and color screens continually, but, though backed plates are necessary, it is the choice of the light that makes success possible. I wait until the day comes when a thin veil of fog rolls in from old ocean and acts as a blanket through which the light filters in a soft subdued radiance that casts light shadows and illumines every portion of the tree with just the quantity of light needed to balance the picture.

Patience and the choice of day are great factors in this as well as other branches of the work.

CYPRESS TREES ON THE 17 MILE DRIVE, MONTEREY — BY A. H. COWAN

CAMERA CRAFT

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August Instead of July

Troubles in the mechanical production of CAMERA CRAFT made it impossible to issue the July number within the month. The July number has therefore been abandoned, the August issue taking the same volume and serial number. This will not in any way affect our subscribers as all subscriptions have been extended one month.

Another Advancing Army

The National Encampment of the Grand Army of the Republic will be held in San Francisco August 17th-24th. Already preparations are being made to decorate the city on a most elaborate scale, and the photographer who likes to make pictures of flying flags, parades and night illuminations will be in his glory. General George Stone and Major William E. Lutz, chairman and secretary respectively of the Executive Committee, have labored long and faithfully to prepare the reception that will greet the old soldiers and for the entertainment that is to follow, and they deserve the thanks of every San Franciscan.

California Today

The California Promotion Committee has just issued a book compiled by Charles S. Aiken, editor of *Sunset Magazine,* entitled "California To-day." The publication is designed to meet the demand for a condensed yet comprehensive description of California and its resources, and the care and thoroughness displayed in its compilation is evidence of the fact that Mr. Aiken fully realized the responsibility of his task.

There are over fifty well-chosen full-page illustrations, but the presswork and paper used in the book are so wretched that the beauty of the engravings are almost entirely lost. Then no credit is given the photographers who made the pictures—an almost unpardonable sin in the eyes of those who photograph.

The book is to be distributed gratis and this may explain the economy exercised in its production, but it does not excuse the omission of credits to the hard-working photographer.

Two Timely Articles

Two recent articles in CAMERA CRAFT have attracted wide attention and have produced a flood of correspondence, some of which is so interesting that a portion of it will be printed in the September number. The article by A. C. Pillsbury on his new camera and Herbert Wilson's story of his troubles in studio building, both seem to have been singularly timely. If any of our readers have anything to offer in connection with these two articles we will be more than pleased to hear from them.

What We Want

CAMERA CRAFT is on the lookout for good, snappy articles, illustrated or otherwise. If you have anything in mind that will interest our readers, write us about it. We want plain, unornamental facts and are willing to pay the market price for them.

The Photographic Association

With more than the usual California thoroughness, the professional photographers have completed an organization that rivals many of the Eastern bodies of long standing. With over a hundred members, a well filled treasury and splendid plans for a big convention, the new association and its officers are to be congratulated. Every professional photographer in California should join in the movement, which means much to the profession as a whole.

Several interesting art exhibitions are scheduled for the coming fall in San Francisco, in addition to the Third San Francisco Photographic Salon, among them being that of the Newspaper Artists' League, mentioned elsewhere in this number, and an entirely new venture on the part of the sculptors and painters. Both of these exhibitions will be held in the Maple Room of the Palace Hotel and will be interesting from a social as well as an art standpoint.

FIVE JACKS

Lantern Slides on Process Plates

HAROLD BAKER *in Ilford Photographic Scraps.*

Lantern slides from diagrams, maps, drawings, etc., are often required, and present many difficulties to those who are unaccustomed to prepare them. It sometimes seems quite impossible to get the lines dark enough without degrading the brilliancy of the whites. Of course to the old collodion worker it is quite easy by means of redevelopment and intensification to produce a copy of a plan with sharp black lines (really black, not a dirty brown) with perfectly clear glass spaces between them. But as the collodion worker scarcely exists outside the conservative process block, or professional lantern slide makers, we need not consider him. The every-day photographer is often at a loss when he is asked to make such slides, and probably they give him so much trouble that he becomes discouraged.

To such a man Ilford Process plates should be a "boon and a blessing," for they will help him to do the work with ease. In the first place, his negatives should be made on process plates, the black lines should be clear glass and the white spaces nearly opaque. If the drawing to be copied is too weak to give an ideal negative, much can be done by intensification.

The exposure for process plates must be full, if good density is to be obtained; it is useless to give a short exposure and expect to get a vigorous result. In a good light, with *f*-32 the exposure will be from 30 seconds to a minute, the developer should be sparingly diluted with water, and should contain a fair proportion of bromide; but any developer which gives density will give good results. The image should begin to appear quickly, say, within thirty seconds or less; development should be prolonged until the white parts of the drawing appear on the back of the plate, and if the dark lines are slightly veiled it does not matter. If on examination the dark lines appear much veiled in the negative, reduction with *very weak* ferricyanide reducer will clear them without, apparently, affecting the denser parts. If the plate has been over-exposed, or over-developed, the very fine lines will sometimes be blocked, and may even almost disappear; here again very weak ferricyanide will effect a cure.

When the drawing is soiled or creased it is almost hopeless to obtain a negative which will give a good slide on a lantern plate; but by using a process plate for making the slide excellent results can be secured from decidedly poor negatives. A hydroquinone developer should be used, and the slide may be slightly over-developed and cleared with very dilute ferricyanide and hypo. Most of the creases and dirt on the original drawing will be absent from a slide treated in this manner. In making the negative a full exposure must be given; under-exposure produces flat, weak negatives.

Title slides are often useful for a lantern evening, and it is more restful to the eyes if they are made with the letters showing light on a black ground. Slides with black or colored letters on a clear glass ground are very trying to an audience if they come after a series of ordinary lantern slides. The former are easily prepared. The words should be written or printed in the deepest, dead black on a smooth white card; this card is then photographed on a process plate 3¼ x 3¼ inches, but the exposure must be under rather than over, as there must be no deposit of silver on the spaces representing the black letters. The slide should be developed carefully so as to obtain the fullest density in the spaces round the letters, but the letters themselves must be represented by "bare glass."

It is almost impossible to get sufficient density in the background by development alone, and development must be stopped as soon as the letters show any sign of veiling, as it is more essential to have clear letters than to have a dense background. The exposure is of the greatest importance, as it must be sufficient to give fair density in the background, yet not enough to veil the letters.

A perfect slide is scarcely ever obtained by development, so recourse must be had to intensification. After thorough washing the slide must be bleached right through with mercury, and, after another thorough washing, blackened with dilute ammonia. The slide should not be dried in spirit, as this tends to damage the clearness of the letters.

When dry the letters may be tinted various colors. One method of doing this is to superimpose slips of colored gelatine, but a better result is obtained by staining the film with

THE NEWS BY BELLE JOHNSON

the liquid colors sold for tinting photographs. Three colors will be sufficient—red, yellow and blue. A special brush should be kept for each color, and the red brush should never be put into the blue bottle, and so on. The colors may be washed right over the letters, as the background should be so dense as to be disregarded. Two or more coats may be necessary, and if it is desired to produce more than three colors, several other shades can be obtained by washing a word over with blue first, allowing the color to be absorbed by the film, and become half dry, when a wash of yellow over it will produce green; red on blue will produce violet, while red and yellow will give scarlet or orange. Different greens and violets can be produced by using the two colors in different proportions. *The colors should never be mixed together before putting them on the slide;* but each color should be washed on separately. If, for instance, green is desired we may begin with a faint wash of yellow, followed after a few minutes by a wash of blue; this may be rather too blue, and a second wash of yellow can be laid on, or vice versa. Mixing the colors before applying them produces muddy, dirty results. The letters on the slide will be reversed, but this can, of course, be put right when it is placed in the lantern.

It is not necessary that the dark parts of the slide should be absolutely opaque. Those slides which show best on the screen, even when electric light is used for projection, are those in which the letters are quite clear, and the dark parts not dense enough to prevent showing where the color has been washed over the letters when held in the hand; such a slide will show the letters quite bright on a pure black ground.

A pretty title can be made by putting black letters over a landscape. This is done by writing or printing the title on smooth, pure white card, or Bristol board, using Stephens' ebony stain for ink. A negative the proper size is made from this on a process plate in the usual way, and a slide also on a process plate is made from it. A lantern slide of a suitable subject is then made, but it should be delicate in character, so that it may not obscure the black letters of the title; this slide is used as a cover-glass to the black letters.

A Photographic Digest

By Dr. H. D'Arcy Power

Stripping Films

It is often necessary in process and carbon work as well as in broken negatives to strip the film from a plate. Of the various methods to effect this the following by M. Drouillard, published by *Photogram*, is one of the most simple. Make a bath consisting of

Formalin .....60 to 90 minims
Sodium carbonate crystals.....20 grains
Water .....1 ounce

Place negative in this from five to eight minutes, sponge off, dry and immerse in one ounce of water containing 45 minims of hydrochloric acid, the film can then be readily removed. It is advisable in all stripping operations to first cut through the edge of the film right down to the glass.

A New Gum Process

A bichromate process very nearly akin to gum-bichromate is the logwood process of Mr. Fox, and the method is so easy and simple that any gum-bichromate worker can make a few experimental prints without much trouble. Plain or sized paper is sensitized with water, 12 ounces; bichromate of potassium, 1 ounce; sulphate of copper, 2 ounces; after which it may be dried quickly before the fire. Exposure is under a positive and is about the same as for gum-bichromate. Development is by floating the sheet exposed side downward on a rather warm decoction of logwood chips, made by boiling two ounces of logwood in half a pint of water. Washing in hot water and clearing in a weak alum bath serve to fix the print. When solutions of full strength, as above, are used, the tone is a full clear black, but by diluting the solutions a wide range of tone and effect is obtained.—*English Amateur Photographer.*

How to Make the Best Enlargements

Mr. C. Truscott recently gave a lecture before the Philadelphia Photographic Society which is all important to the makers of enlarged negatives, and incidentally to carbon workers in general. As reported in the society's journal, Mr. Truscott said:

" 'The road to perfection' is long and sometimes arduous, especially to those who are in a hurry, but to those who do not expect to quite catch up with their ideals and are content to take one step at a time (and sometimes even to turn back and make a fresh start) the traveling is fairly good. The perfecting or mastering of a process or machine cannot be done in a day or even a year. We should not be discouraged permanently, but keep pushing on, satisfied if some progress is made each day, however little, feeling assured that some measure of success will be ours.

The camera is undoubtedly an instrument of precision, and no draughtsman however gifted can ever hope to begin to approach it in accuracy of drawing, correctness of perspective or ability to delineate detail. When however it comes to the registration of color and tone values, photographic processes are not nearly as perfect.

In proof of this statement let me call your attention to one or two points. You are all familiar with the fact that a photograph of a photograph is never quite equal to the original, we recognize it at once as "a copy." Now if the chemical side of Photography were as perfect as the optical this would not be. We should be able to copy a copy of a copy many times, and the last ought to be as good as the first. But we know it never is. There will be a slight loss each time, and the sum of these losses would be appalling. This loss is most evident in the lightest tones which we call the "high lights." That is to say the highest light and the next highest light are rendered the same in value, and the distinction between the two is lost, and we recognize it at once as "a copy." No matter how carefully the copy is made, there is always some evidence of this flattening or degrading of the high lights.

This being a matter of first importance I have thought it worth while investigating this serious defect and also of bringing the subject to your attention.

In the first place let it be observed that this defect is common alike to both wet and dry plates, to collodion and gelatine, that it is decreased by a minimum exposure and in-

creased by a maximum exposure, that a fully printed print from a soft negative will copy with less flattening of the high lights than a rather light print from a strong negative.

This fault appears to arise from two causes, first the near approach to the saturation or solarization point in the negative, and second, the incapacity of the printing processes to register the lighter tones correctly, and I find this latter cause occasions much the greater loss.

Several years ago the speaker had occasion to need a screen of tones in accurately graded ratio, each tone or tint to be of a decided and distinct difference from its neighbor—what more natural than to wish to make such a screen by photography? The ratio found to answer the purpose was an increase of each step or tone of 50 per cent, and for some reason not now apparent he decided on twenty steps or tones; but it is one thing to decide on what you want and quite another to obtain it. Nothing of the kind was purchasable, so it had to be made—but how? Well, it seems a very simple matter to take a sensitive plate or a piece of sensitive paper and expose to a constant light different parts of the surface for any proportionate time desired.

What could be more simple? I do not know if any of my audience have experimented in this direction. If they have they will have found that when we get about ten tints or steps we have reached the limit of the registering capacity of every printing-out or developing paper or plate known to Photography, and have only one-sixtieth of the capacity necessary to register the twenty tints desired. We will also find that the tints both at the dark and light end are incorrectly registered.

There is, however, one sensitive surface

PATRICIA BY ANNIE W. BRIGMAN

that is neither a developing nor printing-out material which is not only equal to the occasion, that will not only register correctly all the hundreds of octaves necessary for this purpose, but the speaker has not been able as yet to reach the limit, although he has exposed a whole day of continuous sunshine. The sensitive material referred to is bichromated gelatine—the only sensitive material that cannot be solarized—the only material which appears to have no limit to its capacity for registering tones correctly and giving, when combined with pigment, a correct register of all the tones in the negative.

The screen referred to is now exhibited for the first time in public, although made more than twenty years ago. The exposure of the darkest tone was more than three thousand times that of the light tone. A positive made from this negative is also shown, the light tints of it being, of course, printed from the dark tints of the negative, and yet placed side by side you cannot tell one from the other. The perfection of this screen is simply marvelous.

Another unique screen is also shown consisting of 440 squares, which was made by transferring two of the above positives to glass and mounting them at right angles to each other. This screen could be used to register a month's continuous sunshine.

This ability of bichromated gelatine to register tones in correct relation to an unlimited extent having been known to us very many years, it is rather surprising it was not turned to account long ago.

Pondering on this subject about a year ago, and by a pure process of reason, it became apparent (we refer, of course, to the speaker) that the best methods of making enlarged negatives known to the text books did not include the use of this perfect process in a way to secure the most perfect results.

If you wish to reproduce a negative the size of the original, and want a negative equal to the original, you should by all means make a contact positive on pigmented gelatine, and the negative in the same manner from the positive, no dry plate or wet plate being used in either case, and the probability is that if this process were repeated a thousand times, the last negative, as far as the accurate registration of tones is concerned, would be equal to the original.

But suppose we are required to make the most perfect enlarged negative from a small one by pure photographic process that it is possible to make, how will we proceed? It pays to plan all work before we begin; sometimes the work is half done when well planned.

It is evident either the positive or the negative must be made in the camera, and as

DUTCH WINDMILL IN GOLDEN GATE PARK BY JOHN DEBBLES

bichromated gelatine is much too insensitive for use in the camera, it follows that only one can be made by this perfect process. The important question now to be decided is, which one? The authorities all tell you to make a contact positive on transparency tissue. Let us see if this is the best procedure. As the high light and delicate tones are the most valuable parts, especially of a portrait negative, and the part where the greatest loss always occurs, and as we have seen the dry and wet plate are both incapable of rendering the lighter and therefore more fully ex-

posed portions, it would appear that by all means where they cannot be both so made, the negative and not the positive should be made on pigmented gelatine.

If you do not by this process obtain a reproduced negative equal in all respects to the original, and that too without any retouching of the high lights, you may rest assured that the fault is with you rather than with the process.

The same principle applies also to the making of the print. There is only one printing process which is capable of giving all that is in the negative without any loss whatever, and that is this same pigmented gelatine, commonly called the carbon process, which is at once the most facile, beautiful, permanent, and perfect process known to the photographer at the present time."

New Methods of Intensification

According to L. A. Ebert, as reported in the *Photogram*, the experiments in catatype with an etherial solution of hydrogen peroxide have incidentally revealed that this latter solution is capable of producing a physical intensification. The plate is to be quickly immersed and then dried and varnished. Water removes the effect. Furthermore, bromide prints submitted to the same treatment are toned a warm sepia. Another method by Dr. R. A. Reiss, reported in Lechner's *Mittheilungen*, is applicable to negatives which during development are recognized as requiring intensification. Instead of directly fixing the negative is well washed and bleached in a bath of five grams each of mercuric chloride, sodium chloride and potassium bromide, again washed for 30 minutes and redeveloped.

Daylight Enlarging

Signor Jose Galan, Aviles, Spain, writes to the *Photogram* as follows: "In using the daylight enlarging camera I have been troubled by unequal illumination of the negative owing to the proximity of buildings. I used a reflector but without success. At last I devised a funnel-shaped chamber of white card, fixed close against the ground glass, which I place behind the negative to be enlarged. This simple device, I find, gives me a perfectly even lighting whatever the direction of the light or however close the surrounding buildings. I believe other readers of the *Photogram* will find it of service."

Mounting Stereograms

In printing from stereograms from separate negatives and in mounting separate prints a failure to previously mark the right and left may give rise to doubt as to which they are. A writer in *Le Photogramme*, M. Forestier, gives the following method: Place one upon the other, images in register, glass side down. The negative which extends to the left of the other should be placed on the left hand in the printing frame.

A Quinine Ray Filter

The *English Amateur Photographer* in a May number refers to some experiments of Sir William Crookes made fifty years ago that are still of great practical interest. Crookes made a ray filter one and one-half inches deep filled with a 25 per cent solution of quinine sulphate and found that colored objects photographed through this filter were reproduced in their true light values. Now it is to be remembered that a solution of quinine sulphate passes all rays but the ultraviolet. It would therefore appear that the failure of the ordinary plate to give orthochromatism is not so much due to its insensibility to the red and yellow as to its over sensibility to the ultraviolet, which is invisible to our eyes. It would seem on the face of it to be more scientific to strain out these invisible rays as Crookes did, than to seek to raise each of the other color groups into parity with them. Crooke's exposure times are not given, but it is to be surmised that they were greatly prolonged. Still, it appears to me that this method is worth reconsideration and fresh experimentation with the improved plates of today.

An Alkaline Fixing Bath

Mr. Chapman Jones has an article on this subject in the *English Amateur Photographer* in which he discusses some of the objections that have so often been raised to the acid bath. He concludes his remarks with the following practical directions:

"After development the plate should not be washed, but merely rinsed to remove the solution clinging to its surface, and then at once put into a fixing bath compounded in a similar way to the developer, but with hypo instead of the developing agent. It is not necessary to have the alkali and sulphite present in so large a quantity as in the developer; I have found a quarter to a fifth

the strength serve well, but the exact quantity is not of great importance. A good fixing bath for general purposes will contain in each pint: Hypo, 4 ounces; sodium carbonate, 20 to 30 grains, and sodium sulphite, one-quarter of an ounce. This solution keeps indefinitely. After remaining in such a bath until it appears fixed, the plate should be soaked further in a fresh portion of the solution, and then thoroughly washed once for all. By this kind of treatment the gelatine is kept clean, but if it should have become stained, the fixing bath tends to dissolve the matter that forms the stain and so to remove it. Such a bath does not deceive, for the staining matter remains of its full visible color so long as it is present. When the film appears to be clean, it really is clean so far as can be ascertained, for the stain, if any, is in its most visible form.

Such a fixing bath as that recommended may be used again and again until its action is slow, if that is desired; and I do not see that more can be said of the acid bath. The solution may get a little dark, but I have never known it to stain a film. When deemed advisable the small portion in active use is thrown away, the second portion takes its place, and a fresh quantity from the stock bottle is taken to form the second bath. Besides the advantages already described, such a bath retains the full fixing power of the hypo put into it, and there are no changes to take place between its constituents. In these matters, too, it is distinctly superior to any acid bath. In short, the alkaline bath has all the advantages of the acid bath and none of its disadvantages; it is the only true method of keeping gelatine films clean, and alkaline treatments is, I believe, the only way of making them clean."

Studies In Development

The journal of the Societe Francaise de Photographie contains a paper by Commandant Hondaille on the above subject from which we learn that the rate of appearance of the photographic image bears a definite relation to the rise of temperature, each degree of increase shortening the time of appearance by 5 per cent. Fixed relations also exist in the matter of under and over exposure. Double the normal exposure hastens the appearance of the image by 15 per cent, whereas half the normal exposure retards by 15 per cent.

Ethyl Red

I referred in a past number to the important part played by ethyl red in the production of the wonderful three-color photographs that Dr. Miethe has recently shown us. Those who wish to experiment along these lines can obtain this dye from the firm of Meister, Lucius & Bruning, of Hoechst on Main, Germany, by whom it is prepared under the name of orthochrome T. It sensitizes for green, yellow, orange and red and does not lower the sensitiveness of the plates or cause fog. To sensitize dissolve one gram of the dye in 100 c.c. hot alcohol and then dilute to a litre with a mixture of alcohol and water in equal parts. This mixture must be kept in the dark, and the sensitizing performed with the minimum of light.

Portrait Lens Exhibited

Every photographer should attend the coming convention of the American Photographic Association at Indianapolis, if for no other reason than to see the new series of Bausch & Lomb portrait lenses, which will be on exhibition there. The lenses are of four distinct types, and their performance will be demonstrated by portrait studies made expressly for the occasion with them. The exhibit will be the first one on the main floor opposite the entrance where every one can spend a moment in looking over the lenses and their work before attending the sessions.

The Amateur and His Troubles

By Fayette J. Clute

Durable Soap Bubbles

A reader in Washington has been trying to photograph a child blowing bubbles and has had several negatives spoiled by the bursting of the bubble at an inopportune moment. He has seen a formula for a durable article, but cannot place it. I have hunted up the one recommended by Mr. Archibald Williams, who has made quite a study of the subject. Here are his directions: In 20 ounces of water dissolve half a dram of caustic soda, and to it add three and a half drams of oleic acid. Let this stand a day or two in a stoppered bottle, and then to three parts of the solution add one part of pure glycerine. Shake well and set aside for a few days, after which the pure liquid should be siphoned away from the scum that will form on the top. If kept well corked this solution will be available for numerous experiments. The cost is trivial and the superiority of the results repay one for the trouble.

A Shutter Speed Tester

A reader in Iowa has been told just how to determine the speed of his shutter by using a bright object on the end of a string, thirty-nine inches long, as a pendulum; this pendulum to swing in one second, and in doing so pass over one hundred spaces marked behind its line of swing in white lines on a dark ground. The number of lines crossed by the bright object in its swing as indicated by the negative made to indicate the number of one one-hundredths of a second consumed in the exposure. Later he came to understand that the speed of his pendulum was much greater at the center of the swing than at either end. He therefore writes to ask how he can graduate the lines so that the distance between any two will require exactly one one-hundredth part of a second for the pendulum to pass at that particular part of the swing. To do this would require no small amount of calculation. I think my correspondent can secure very nearly correct measurements of his shutter speeds with the scale as he now has it graduated in one hundred equal parts if he will take a little care to expose when the pendulum is about half way between the highest and lowest point of the swing. To make himself still more safe it might be advisable to make two or three exposures upon the swinging pendulum, taking the average of the several results. If the entire background be black with the exception of the lines, this can be done on one plate, shifting the camera a trifle so that each exposure will come on a different part of the plate. Such a plan ought to give the correct exposure of any certain indicated shutter speed to a nicety.

Saving Silver Waste

There is a constantly recurring demand from my readers for a method of saving silver wastes. Many of these correspondents have tried methods advised; others have found that the appliances demanded were beyond the reach of their purse, at least for such special purpose; while still a few more have applied to others for information and have been told that such wastes were not worth the trouble. From the letters I have received it is clear that a saving in dollars and cents is not the main incentive, but rather, the inquirer desires to carry out some simple process more with the idea of enjoying the pleasure and gratification to be derived from the operation. Under these circumstances it is with no little pleasure that I give the details of a method employed by two amateur friends, students at Stanford University, who have worked out the process in a most practical manner. The hypo bath, which is the ordinary acid sulphite bath that remains clear as long as workable, is placed, when exhausted, in a large glass bottle containing several strips of sheet copper that have been made perfectly clean. As a coating of silver forms upon these strips the bottle is shaken to remove a portion, which collects with other silver salts at the bottom. Occasionally it will be necessary to clean the copper strips with oxalic acid. When it is thought that all the silver has been deposited in the bottom of the bottle the bath should be gently decanted off and the powder remaining at the bottom as gently washed by allow-

ing water to run into the bottle. This powder is almost pure silver. To purify it, it is first dissolved in hot nitric acid and the excess of acid evaporated off. The residue or nitrate of silver is then dissolved in water, to which hydrochloric acid or a solution of common salt has been added, until the precipitation of silver chloride ceases. This chloride is filtered out, washed well, and then fused with sodium carbonate and a little powdered charcoal, taking equal parts of chloride and carbonate. This fusion is best accomplished by using a firebrick in which a small shallow depression has been made, employing the flame from a gasoline torch which gives a heat of about 1200 degrees C. This fusion brings the silver back to the pure metallic state from which it may easily be converted into the nitrate of silver as used in various photographic processes. The object of using the hydrochloric acid treatment is to remove the copper and other impurities. A crucible is handier in fusing, but requires so much more heat that it is not advisable. In using the firebrick the charcoal powder may be omitted.

Carbon Tissue, Plate Backing, Trimming Ovals

A correspondent in Indiana sends a few questions and in return gives the hint conveyed in the next paragraph. In reply: I know of no carbon tissue made in this country and for that reason can refer him only to a dealer, not a manufacturer. G. Gennert, 24 East Thirteenth street, New York, will send a little book entitled "Photography in Fifteen Colors," together with prices of material, on request. As to directions, nothing better than the *Photo-Miniature*, No. 17, can be asked for. Your dealer will supply it or get it for you should that particular number not be in stock. Backing plates certainly does pay for the trouble if one is at all critical as to results. It is not such a great trouble, particularly after one has had a little practice at the work. With a backing that dries rapidly and is easily removed there is little trouble and the improvement in one's work is at least noticeable. As to trimming ovals with a wheel trimmer and cut-out forms from the heavy Rotox papers, one should either use one of the lighter grades for prints intended to be so trimmed or obtain a better trimmer. One is made that will trim ovals and circles from quite heavy card. A local professional uses the ordinary trimmer on such work when unavoidable, merely as a marker, employing an assistant to complete the trimming with a pair of scissors. She has become quite expert at the work with a very little practice.

Photographic Calling Cards

My Indiana correspondent sends the following hint concerning a little novelty that has taken well with his patrons and brought in many a dollar that would otherwise have never reached him. In making sittings in the regular line of business he makes one small negative, generally as a preliminary while studying the possibilities of his subject. Before the regular order is delivered this small negative is printed on the upper left-hand corner of an ordinary calling card that has been previously sensitized with some good solution, either blue or sepia, blocking out all but the head and shoulders with opaque paper. With the name neatly written in the proper place, this is delivered with the pictures ordered, resulting in all cases in inquiries as to the price of additional copies, and in many instances in an additional order amounting to no small sum.

Influence of the Background

Taking into consideration simply a series consisting of a dark, a medium and a light-colored plain ground, a few experiments will demonstrate that the selection made for any particular subject will in no small measure influence the resulting portrait. With a sitter in dark clothing, the darker ground will strongly concentrate the interest on the face as well as by comparison, reducing the apparent strength of the shadows therein. With light drapery the effect is exactly opposite; the drapery drawing attention from the face and by its suggested lightness increasing the apparent depth of the shadows. A medium tint in the ground has the effect of making the interest more general, and, being nearer the shade of the darker portions of the face, it tends to reduce the contrasts. A light or white ground emphasizes the face with white draperies and increases the apparent contrasts. With dark draperies, the effect is to make the face secondary in interest and at the same time to apparently flatten the lighting. From this it can be seen that where a harsh lighting or strong features are to be dealt with the selection of a suitable ground may mean much, as it may also do in a case at the opposite extreme.

Telephotography

A correspondent in Illinois wants to know something about telephoto work, the bellows extension required, the most practical amount of magnification, the required exposure and the best plates to use—whether ordinary or isochromatic. To give my correspondent much information of value would require more room than I have at my disposal in this department and I would advise him to obtain the May and June numbers of CAMERA CRAFT and No. 26 of the *Photo-Miniature* and digest their contents. Briefly, to answer his questions in their order; the telephoto attachment as generally supplied is a negative lens of about one half the focal length of the lens with which it is to be used. Roughly speaking, multiplying the focal length of this supplementary lens by one less than the number of magnifications desired will give the bellows extension required. Using my own as an example, it is four inches focal length to be used with an eight-inch Goerz. Multiplying this four by one less than the magnification which I use the most, six times, I get five times four or twenty inches, which is almost exactly the bellows extension required. I find in practice that it is best to be content with six magnifications or even less. The exposure is shorter and the results more satisfactory. The exposure is approximately that required for the normal lens multiplied by the square of the magnification. There is this difference, however, that the difference between dark objects in shadow and light objects in sunlight is not so great as that which prevails when working with the normal lens on subjects near at hand. This is owing to the equalizing effect of the large body of atmosphere intervening in the case of most subjects chosen for telephoto work. The greater the distance of the subject, the less allowance one need make for what would be quite important factors in working with a subject close at hand. The best plates are by all means the isochromatic brands as they cut out a great deal of the haze and with a color screen remove the too evident softening of the results that is due to the blue and purple of the distance.

Solio Prints Softening

Two of my "back east" correspondents complain that they are troubled with the softening of the emulsion with which the paper is coated. This is a fault common to all gelatine papers when handled in hot weather without proper precautions as to the use of a cool bath and wash water. The trouble can be easily avoided by adding to the toning bath a little formalin, say five drops to every ten ounces. All trouble of this kind will cease and the prints will become much more easy to handle. Do not blame the paper, the fault lies in your own disregard of the requirements of a gelatine emulsion. The makers could easily incorporate a hardener in the film but it would render the paper less liable to go through the chemical part of the process with the same permanency as to results, as the process would be made slower in each case where chemical action was expected to take place.

Cloud Negatives

I have been making some cloud negatives recently and as an experiment as well as to use up some slow plates I bought for another purpose, departed from my regular practice in this class of work. Instead of using fast plates, a small stop and a quick shutter, I used the slow ones, a larger stop and a slower shutter. The latter is the best plan. The clouds are more cloud-like, due perhaps to their slight motion during exposure, and the best of all, being on a slow plate, they are much easier developed so as to obtain any desired quality in the negative. Using the fast plates with the attending risk of over or under exposure, I was not a little at the mercy of my plate and developer, often not feeling quite sure as to the final result until the negative was examined after fixing. With the slow plate, this is changed. We all know a slow plate is more under control than a fast one and most of us have an idea that it contains more silver or for some other reason is capable of building up a better image. Be it as it may, I think I will continue the plan as I find myself wanting cloud negatives in the future.

Using Flash Powder

I took a run up the road one Saturday afternoon recently for the purpose of getting an early start on a little ramble with my camera the next morning. At the stuffy little summer hotel were a few guests who were enjoying camping in a near-by canyon. The piano in the little parlor was tortured as an accompaniment to a few of the latest songs and

then one of the party suggested that he be allowed to take a flashlight picture of the young ladies; they looked so charming in the quaint attire that their camping experience made advisable. The plan meeting with general approval, the camera fiend prepared to do his best. A tin plate from the kitchen was used as a flash machine, and although the wind was blowing the curtains about in a most pleasing manner, even threatening to extinguish the hanging lamp within a few inches of their heads and but a few feet from the operator, he poured the powder from the bottle onto the plate as if to show his entire disregard of the fact that it cost half a dollar an ounce. I suggested that there was quite a draught in the room, but he loftily explained that the flash was so quick that any motion the wind might cause would be too slow to show in the picture. I said no more, but could not help thinking of a most serious accident that occurred as a result of just such carelessness; allowing a little of the fine powder to be carried into the flame of a near-by gas jet. I was glad when it was all over and also felt that I could congratulate my fellow camera enthusiast that his flash had not proven even more surprisingly rapid than he had explained.

Improving the Negatives

I have a good many negatives that I do not think I could improve very much; aside from the choice of the subject, the lighting, or the view point; but I have a large number of a certain class of subjects from which prints in their original state never suit me at all. These are landscape negatives with a near foreground and distant trees. The foreground is always too light and the distant trees too dark. I tried to convince myself that this idea was wrong and that the plate must be right, but a little observation of nature will convince one that the demand of one's eye is nearer correct than the rendition given by the camera. I also found that by changing the relative tone of these two elements of such compositions even exaggerating the effect was permissible, a much better representation of distance was secured in the case of the distant trees. Instead of looking like small bushes in the foreground or middle distance, they assumed their proper position as soon as made to print lighter and thus suggest the intervening atmosphere. To do this one can either have recourse to local intensification and reduction or they can apply a wash of Acme water color to the distant portion and strengthen the foreground by a little extra printing. If the former method is employed it is well to choose the permanganate reducer and a good one-solution intensifier, like the "Bayer" production. Small brushes or a tuft of cotton wool should be used according to the size of the parts to be treated. It is also necessary to work near a tap or have a bowl of clear water handy in order to stop the action immediately the required effect is produced. I really believe that the prints from nine out of ten landscape negatives could be improved by this treatment. The falsification of the camera in this respect has been forced upon us so persistently that, like its misinterpretation of the tone values of certain colors, we have learned to overlook and fail to see how "photographic," not to say false, is such rendition.

Developing After Fixing

An Ohio correspondent writes that he has a dim recollection of having read of such a process and asks if I can give him details as to the best method of proceeding, advising him if I know it to be practical from personal experience. From personal experience I cannot say that it is practical, but from my knowledge of a similar operation employed in the wet plate process, I have no doubt as to its entire practicability. My correspondent can easily test the matter for himself and I should think it would be a most interesting experiment, particularly as the development can be accomplished in full daylight. Four solutions are required; the first is made up by placing one hundred grains of nitrate of silver in two ounces of water and adding two hundred and forty-five grains of sulpho-cyanide of ammonia. This should be stirred until clear and then made up to ten ounces with water. Distilled water should be used for all silver solutions. The solution is next cleared by adding drop by drop a saturated solution of hypo-sulphite of soda, stirring the while so that no more than the required amount need be added. This solution should either be kept in a non-actinic bottle or in the dark, light causing it to discolor. The other three stock bottles contain ten per cent solutions of pyro, bromide of potassium, and ammonia, respectively. The pyro solution should have a little meta-bisulphate of potassium added to act as a preservative. The developer is compounded from these stock solutions as follows: Pyro solu-

tion, three drams; bromide solution, two ounces; ammonia solution, six drams, and silver solution, six ounces. The plate which has been previously fixed, well washed and dried, is placed in the tray and flowed with the developer. Development is gradual, the image growing to good density and proper gradation if exposure has been at all near normal.

Pyro Stains on the Hands

I was in the darkroom of a local commercial photographer one day last week. He had just finished his developing for the afternoon. He reached down a pint beer-bottle from the shelf and gave his hands a rub with about a spoonful of the contents. Another bottle, another rub; then a wash under the tap and all signs of pyro stains were gone. Inquiring, I found that the first bottle contained water in which had been dissolved about a spoonful of chloride of lime, while the second contained a like amount of water into which had been added a spoonful of hydrochloric acid. It seems a most simple means of keeping the hands clear of unpleasant pyro stains.

Intensifying Platinum Prints

A correspondent who has read that underprinted platinum prints may be made satisfactory by intensification, writes me asking for a good formula. He has failed to obtain satisfactory results with the formula given in the article which he has read. I can only advise my correspondent to employ such processes as the maker of the paper chooses to recommend. There is an acid pyro-silver intensifier with which I have never been able to succeed. The chloroplatinite or physical intensifier gives a coarse-grained image, while both the gold and the uranium toning methods are too prone to degrade the whites. The uranium method of intensifying is recommended by some makers and is perhaps the best in use.

Overnight Outing of the Camera Club

The outing committee of the California Camera Club has arranged for an overnight outing at Camp Vacation on August 10th. Plenty of picture possibilities are promised, with black bass fishing, and a general good time in addition. The cost of the trip is unusually low: Railroad fare and camp accommodations for two nights and five meals is only $3.00. To those returning Sunday there is a rebate of 50 cents. The boat leaves at 2:30 p. m. Saturday, August 8th, via Tiburon Ferry, returning to San Francisco Monday, August 10th, 10:20 a. m., or Sunday, August 9th, 7:25 p. m. Those desiring to go earlier Saturday morning, 8:00 a. m., or Friday, can do so by paying additional for the extra accommodation. Tickets will be ready Monday, August 3d, and can be procured from Miss Voy at the Club Rooms.

DOG-TOOTH VIOLETS

Notes and Comment

Bausch & Lomb Competition

The photographic competition inaugurated by the Bausch & Lomb Optical Company, Rochester, N. Y., which closes October 3rd next, has assumed international proportions, as exhibits have already been received from nearly every quarter of the globe, including China, Japan, Australia, South Africa, South American countries, etc. The collection of pictures when the exhibits are completed next fall will embrace every branch of Photography, from the simplest of amateur to the most advanced of professional work. The great number of photographs submitted and their wide distribution is not to be wondered at, since the Bausch & Lomb Optical Company have produced over half a million high-grade lenses, besides many hundreds of thousands of the simpler forms of photographic objectives which are used on hand and box cameras throughout the world, as well as photographic shutters for every camera making country in existence.

Awards are given in each class also for lenses of other manufacture fitted with Bausch & Lomb shutters. All the Bausch & Lomb lenses, no matter on what cameras supplied have the Bausch & Lomb name engraved upon them. The same is true of the shutters.

American photographers will take good care that none of their laurels are carried abroad, and it has become quite as much a matter of patriotism in submitting fine exhibits, as a matter of winning the large cash prizes offered.

Good Negatives Wanted

It may be of some interest to some of our readers to know that the American Aristotype Co. are on the lookout for good 5 x 7 negatives, either landscape or marine. As they will use these negatives for advertising purposes, they must be of good platino quality—clear shadows and snappy high-lights. The view must be attractive—something that will catch the eye. Should our readers have negatives of this character which they wish to dispose of, we would suggest that they send proofs and price to the American Aristotype Co., Jamestown, N. Y.

Different Photography

Milton Waide, formerly President of the Photographers' Association of Illinois, and now one of New York's successful one-man photographers, has summed up his experiences in a treatise shortly to be issued. The book is called "Different Photography," and will be sent post paid for one dollar. [Milton Waide, 164 Fifth Avenue, New York.]

A Free Circular

A new circular on the use of the Wynne Meter has just been published by Henry Wenzel, Jr., the American agent, and we are assured that copies can be obtained by sending a self-addressed stamped envelope to the Infallible Exposure Meter Co., 237 South Fourth Street, Brooklyn, N. Y.

1871 1903

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Vol. VII No. 4

SEPTEMBER

1903

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STUDY IN THE NUDE
by F. E. MONTEVERDE

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

VOL. VII SAN FRANCISCO, CALIFORNIA, SEPTEMBER, 1903 No. 4

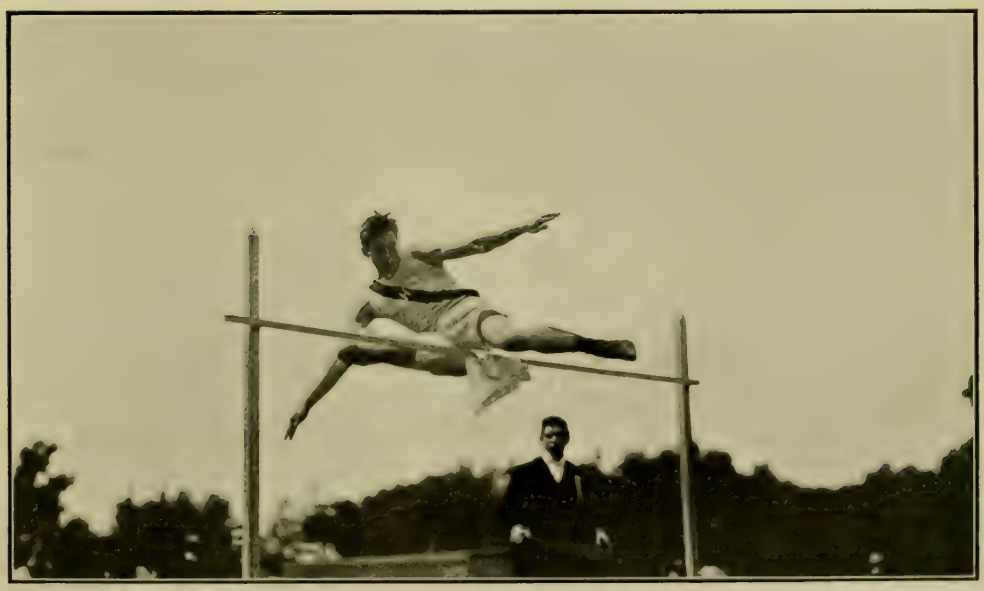
East vs. West

Newspaper Photography in New York

By C. E. TEBBS.
Manager Art Department New York Journal and American

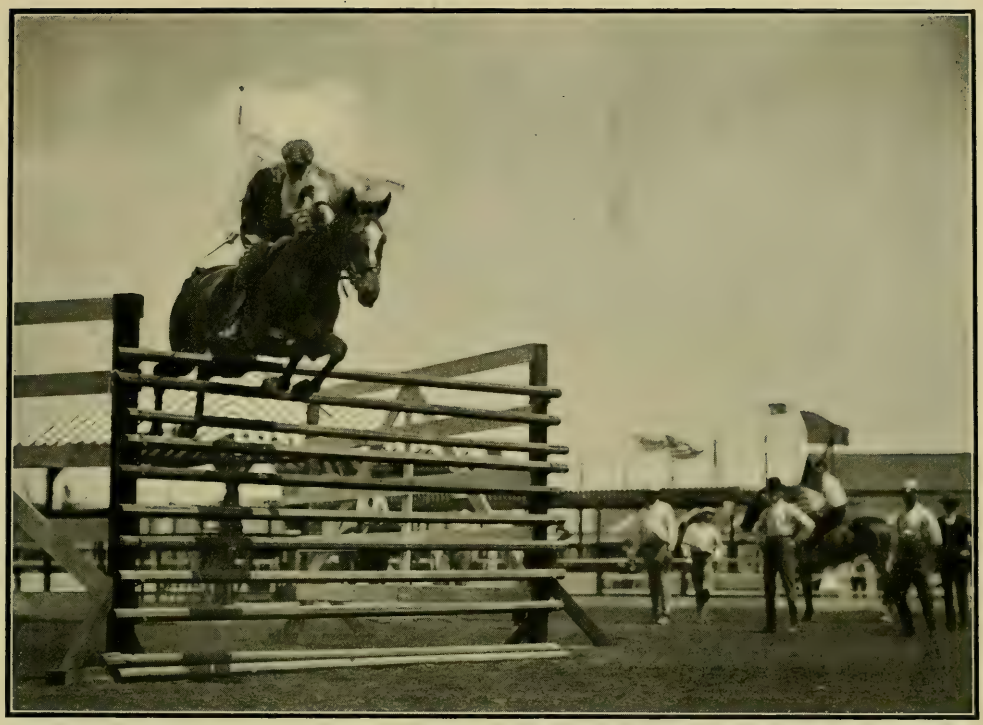
In the June number of CAMERA CRAFT *there appeared a description of a new camera designed for newspaper work by Arthur C. Pillsbury, who described the instrument in detail together with its advantages. The article was illustrated from photographs made with the new camera. The article has elicited wide and favorable comment and has given rise to considerable discussion. Among the letters received is the following from C. E. Tebbs, manager of the art department of the New York Journal and American. The photographs accompanying the article are reproduced by permission of W. R. Hearst.*—EDITOR.

Your article by Mr. A. C. Pillsbury has just been handed to me by several of the members of the New York *Journal and American* staff. The comments on it may seem to you interesting enough to print. I send you several photos with this



ON THE HIGH JUMP BY C. E. TEBBS

THIS IS ONE OF THE MOST INTERESTING PHOTOGRAPHS OF A RACE FINISH EVER MADE. THE PHOTOGRAPHER, F. BERTE, WAS DIRECTLY IN FRONT OF THE HORSES AND WITHIN TWENTY-FIVE FEET OF THEM WHEN THE EXPOSURE WAS MADE.



HEATHER BLOOM, THE WORLD'S CHAMPION HIGH JUMPER AT THE ATLANTIC CITY HORSE SHOW
HIS RECORD JUMP IS EIGHT FEET THREE AND ONE-HALF INCHES

communication, showing you the New York idea of how things should be done.

In the first place, photographs are at least 75 per cent harder to get here, the light being at least 30 per cent inferior to that of San Francisco. Again, there are no friendly policemen to help you through lines—society dodges you, race-track men refuse you—in fact, in comparison to San Francisco, you are decidedly a *persona non grata* in New York. Mr. Pillsbury says in his article:

> When the city editor says: "Now we want about three or four big, fine heads and some general scenes showing lots of people with plenty of action, and, if you get a chance, make several interiors," he doesn't pause to reflect that he has given the newspaper photographer work that will necessitate the use of two or three different photographic outfits, any one of which is an ample load for the average man. The city editor wants results, likewise the photographer wants results. Hence he packs around with him enough apparatus to fit out a first-class studio when he goes to cover an important assignment. For fast work, pictures of objects in motion, he takes a camera of the reflex type. For portraits and interiors he takes a stand camera with a tripod. If the photographer is conscientious he takes with him a battery of lenses of different foci, so that he may be prepared for anything that may turn up.

Well, our staff here to a man do not see why the white man's burden should be so heavy in San Francisco. We use, and I might say almost entirely, a 5 x 7

reflex with a No. 4 Goerz lens. Plastigmat, Goerz, Cooke, Collinear—any favorite make—each man to his choice. We seldom use a tripod.

Imagine a man climbing aboard a ship laden like an ant with several varieties of rigs. Lightness of equipment is our main endeavor, and it counts every time. Every man has a flash pistol that takes up the least possible room, except on big flashlight occasions, such as the Plainfield (N. J.) disaster.

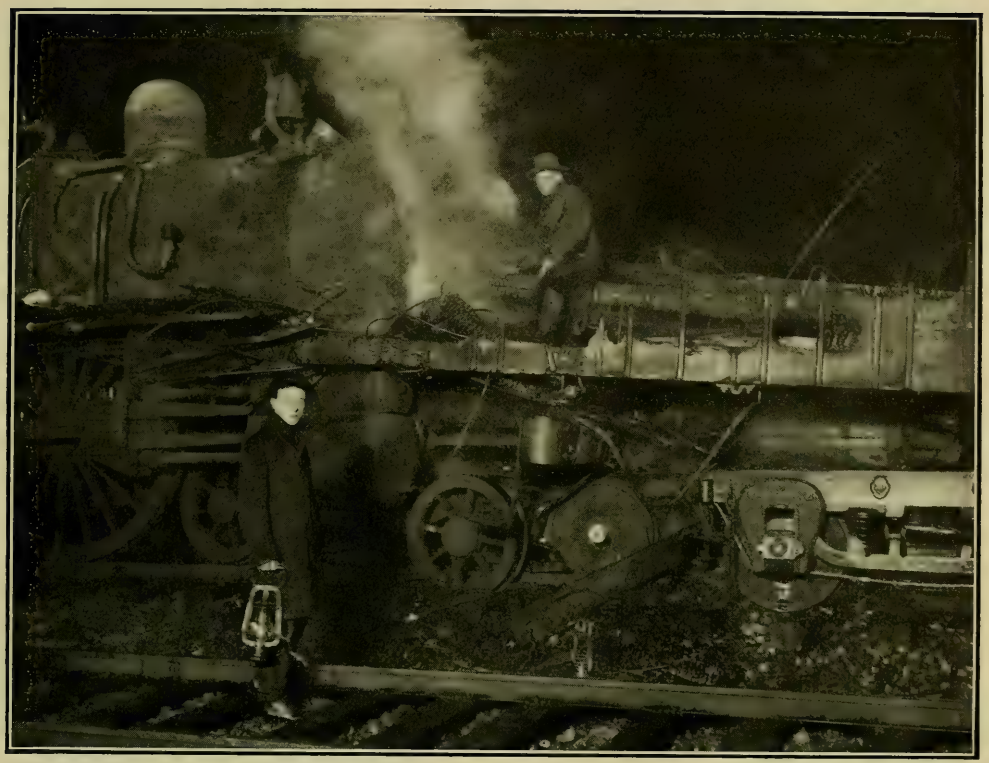
On receiving an order from the city editor, a man can do every class of work exhibited in the accompanying picture as per photos all with practically the same lens and in only one instance with a tripod. I am not trying to make light of

STREET PHOTOGRAPHY IN A BLIZZARD

Mr. Pillsbury and his work, but I cannot agree with him except on his diagram of a useful camera. In all my six years of newspaper work in the art department of the San Francisco *Examiner* and San Francisco *Call*, as a combination artist and photographer, I never came across a man who made a hit who carried a bunch of baggage with his camera in the way of extra lenses.

Newspaper photography outside of the dark room is a case of rapid thought, followed by still more rapid action, an ability to get the right thing in the right place, and to the man behind the gun belongs the spoils.

For us here no impedimenta.



A FLASHLIGHT OF THE PLAINFIELD DISASTER BY F. BERTE

ONE OF THE DIFFICULT SUBJECTS THE PRESS PHOTOGRAPHER ENCOUNTERS

THE NEW CHALLENGER
By C. E. TEBBS
Copyrighted, 1903, by W. R. Hearst

LINING UP FOR THE START
Reading from right to left, the boats are Columbia, Reliance, Constitution
By C. E. TEBBS
Copyrighted, 1903, by W. R. Hearst

Royal Princesses and their Pictures

The little Italian Princess Yolanda has, perhaps, had her photograph taken fewer times than any Royal Princess in Europe. The cult of the photographer is almost unknown here. From the Queen, through the professional beauty, to the actress and ballet dancer, it is almost impossible to obtain their likenesses. The Queen was taken at the time of her marriage, six years ago, and that portrait still does duty on all occasions. Of Princess Yolanda, who is now over a year old, there is only one picture. For actresses one has to hunt all over the city, and then in most cases the pictures are years old and almost unrecognizable; while for the professional beauty and society woman only an autograph order to the photographer will procure you the desired favor, which usually turns out as commonplace as an inartistic pose can make a pretty face. Thus many people have had recourse to amateur photography, and among them Queen Helena. This with her, however, is a recent hobby, and threatens not to be much of a success, as she objects, it is said, to the stains on her fingers unavoidable to developing, but delights in printing and mounting her efforts. As is natural, her little daughter figures in most of her pictures, also the King, and all the royalties who visit the Castle of Racconigi, the Queen herself being the only one omitted. The other day one of the royal princesses was shown the Queen's cameras with great pride. The princess happened to have a camera in her hand when the Queen went forward to greet Yolanda, and could not resist the temptation to take a snap-shot. The Queen was annoyed, but it proved to be such a good likeness that the King insisted on keeping it, and carries it in his pocket-book wherever he goes. The Queen, however, is not yet appeased, and has destroyed the negative, so that at least there can be no reproduction of the 'abomination,' as she calls it.

Daylight Development

In Germany they are still experimenting with daylight development by staining the plate. At a recent meeting of one of the amateur societies it was stated that, with the following developer, the most rapid plates in the market could be developed in full gaslight without any trace of fog:—

1.—Water	1,000	c.c.
Soda crystals	400	g.
Rosolic acid	2	g.
2.—Water	1,000	c.c.
Edinol	30	g.
Sodium sulphite	250	g.
Phenolphtaline	1	g.

Mix as desired. In a fixing bath containing acetone sulphite the red dye is immediately discharged from the gelatine. The cost of these coloring matters is infinitesimal, and the chemical properties of the developer is in no way affected.

Universal Exposition, St. Louis, 1904

Rules Governing Submission of Photographs

By John A. Ockerson
Chief of the Department of Liberal Arts

It has been determined that while the main exhibit of photographs at the Universal Exposition of 1904 will be in the Liberal Arts Department, yet, under certain rules and regulations, selected pictures will be given a place in the Art Building, under the rules of the Art Department.

After careful consideration of the problems involved, a thorough canvass of the situation and fully testing the sentiment of the members of photographic associations, societies and clubs, the following conclusions have been reached in regard to the collection and display of photographs at the Universal Exposition, and it is hoped that the photographic fraternity will be more than generous in their co-operation to the end that the highest examples of their work will make the photographic section conspicuous for its excellence.

First.—Each society of photographers is requested to select in such manner as may be deemed best, from photographs offered by its members for exhibit, such pictures as they consider most worthy of a place in a great Universal Exposition. The pictures so selected, together with such as may be offered by individuals not members of a photographic society, will be submitted to a committee of review and selection.

Second.—The following named camera clubs and photographic societies are requested to name one person each as a member of a committee of review and selection, the members so named to be certified by the officers of the respective clubs to the Chief of the Department of Liberal Arts not later than November 1, 1903. The societies to be represented are: The Photographic Association of America; the Photo-Secession of New York; the Photographic Society of Philadelphia; the Society of Amateur Photographers of Chicago; the Boston Camera Club; the Camera Club of New York City, and the California Camera Club.

Third.—The Committee of Review shall, under the direction of the Chief of the Department of Liberal Arts, carefully examine each photograph offered, dividing them into three grades or classes and one rejected class, the grade to be marked on each picture according to merit.

Fourth.—Grade one, or the pictures deemed to be of the highest merit, shall be certified to the Chief of the Department of Liberal Arts, who shall in turn certify them to the Chief of the Department of Art, and under his direction said pictures shall be examined by the National Jury of Selection of the said Department of Art.

Fifth.—The pictures so examined by the National Jury of Selection which shall be by them considered worthy of such distinc-

tion, shall be hung in the Art Building under the rules of the Art Department.

Sixth—Pictures of the first grade, not admitted to the Art Palace under the above conditions, may be hung in the Photographic Section of the Liberal Arts Palace. In addition to these, there may also be hung pictures of the second grade and as many of the third grade as the space available will permit.

Seventh.—Suitable screen walls will be constructed in the Liberal Arts Palace on which pictures may be hung. The special adornment of space allotted to an exhibit must be done by and at the expense of the respective exhibitors in each case.

Eighth.—The expense of special requirements for lighting, if such be found necessary, will be prorated among the exhibitors at the established rates.

Ninth.—Each picture offered as an exhibit must be the individual work of the exhibitor and should be accompanied by the title of picture, the name and address of the exhibitor, all but the title being in a sealed envelope so that authorship will remain unknown until after the pictures have been graded by the committee. The outside of envelope to bear a design or name which shall also be entered on the back of each picture to identify ownership.

Tenth.—All pictures offered must be mounted, framed and matted and all expense of transportation must be fully prepaid by the exhibitor, and must be shipped at owner's risk, so as to reach St. Louis not earlier than January 1, and not later than January 30, 1904. Shipping labels will be sent upon application.

New Dallmeyer Telephoto Lens—The Adon

By H. Wild

Probably one of the most useful pieces of optical apparatus introduced during the last few years is Dallmeyer's telephoto lens the "Adon." While having much in common with the ordinary form consisting of a negative lens combined with an ordinary photographic positive, it has, both in construction and application, some important differences.

Briefly described, the Adon consists of two achromatic combinations mounted one at each end of an aluminium mount allowing of a great variation in separation. The front lens is a single combination of 4½-inch focal length, and has the large aperture of *f*/4. The back is a negative lens of 2¼-inch focal length. It is interesting to note that this is very like the formula of the first telephoto lens ever issued by Dallmeyer.

With the ordinary telephoto, stopping down is done with the diaphragm on the front lens. This means a considerable loss of light. The diaphragm of the Adon, however, while still performing its function of generally sharpening up the image

and increasing the depth of focus, is so placed that the loss of light is much less. This is due to it being some distance back, so that although its full aperture is nine-tenths of an inch it passes all the light coming through the 1 1-3-inch aperture of the front lens, which acts somewhat like the condenser in an optical lantern.

The principal difference in application is that instead of fitting behind the usual positive lens, it screws in front. This adds very materially to its usefulness, as it allows it to be used on fixed-focus cameras or those having only a small range of focusing. It can even be used on those hand cameras where the lens cannot be taken out. To use it in this way, the lens is set at infinity and the Adon then screwed into the front of the lens and the focus adjusted by means of the rack and pinion on the mount. This will give a magnification of from 2 to 2½ diameters, but the whole of the plate will not be covered owing to the length of the mount cutting off the corners. Used with my 5-inch Ross-Goerz, I get a circle of about 4-inch diameter, and the strange thing is that although the focus of the lens is more than doubled, the rapidity is very little diminished. I reckon that, using the Goerz at full aperture (*f*/6.8), with the Adon in position, the intensity is about *f*/8 or *f*/9. Another useful point is, that used on any lens up to about 8-inch focal length, it doubles the focal length, while very slightly reducing the intensity. Thus a 5-inch lens becomes a 10-inch; a 6-inch, a 12-inch; an 8-inch, a 16-inch, and so on.

This method for using the Adon is useful for certain subjects, such as animals in motion when it is impossible to get close to them, and it is necessary to give a shutter exposure; but to my mind it is most useful when used alone, when it becomes a complete telephoto combination of almost unlimited power. Used in this way it gives a lens of any focal length from 14 inches upward. The covering power varies in proportion to the focal length. The shortest focus that will cover a given sized plate is that which requires about the same camera extension as the usual lens usually used on that plate. Thus at an extension of 5 inches giving an equivalent focus of 14½ inches, a quarter plate is covered; at 8 inches and 20½ inches E.F., a half plate; at 10-inch extension and 24½ inches E.F., a whole plate, and so on.

With a bellows length of about 34 inches, a 20-inch square plate was covered perfectly. Seeing that the mount could be still more shortened, I thought I would like to see the longest focal length I could get, so I roughly blocked up the window of my room (which faces south) leaving a small hole for the Adon to project through, and focused an image of the sun on a door down a passage 40 feet distant. I got a sharply defined image of the sun 10 inches in diameter. This meant an equivalent focus of 80 feet 6 inches and even then I had some power in hand. It struck me what a useful piece of apparatus this would be for astronomical work. Of course, one does not use cameras of 40-foot bellows length, but it would be easy to make up a temporary affair of baths and brown paper of any length. There would be no need of any focusing arrangement, as that is done by the rack and pinion on the lens. A pictorial worker who cannot find a focal length to suit him between the very wide limits of 14 inches and 100 feet must indeed be hard to please.

Another useful quality of this versatile lens is that any amount of diffusion may be introduced at will. In this respect it is very similar to the Dallmeyer-Bergheim lens, except that it does not work at so large an aperture.

It is generally advisable to use a yellow screen when making telephotograms of distant objects, and here I think I can give a hint that may be useful. For isochromatic work I mostly use a home-made screen consisting of two pieces of carefully selected plate glass, coated with gelatine stained with tartrazin, and cemented together with Canada balsam. The glass is very flat but not optically worked. I generally use it in front of the lens, and it works very satisfactorily,

NO. 1

NO. 2

increasing the exposure seven times. When I tried it on the Adon, however, the distortion of the image was very apparent, and it was impossible to get a sharp focus.

By putting the screen at the back *behind* the lens all the trouble vanished, and it answered very well.

Messrs. Dallmeyer give a table showing the equivalent focus and aperture with different camera extensions, but as this may be left at home, I have a very simple rule to get these data when in the field. To find the equivalent focus, double the camera extension and add 4½ inches. The equivalent aperture (*f*/ No.) is the same as the number of inches equivalent focus, disregarding the fraction. This is not quite right, but near enough for practical work. To give an example, we have a camera extension of 10 inches. Doubling this and adding 4½ inches gives 24½ inches, which is the equivalent focus, and the working aperture will be *f*/24. At 6 inches extension we should get 16½ inches E.F. and aperture *f*/16.

It will be seen that at its most useful focal lengths the Adon is quite rapid enough for shutter exposures in a fairly good light, especially when taking into consideration the considerable reduction in exposure, advisable when the foreground of the picture is some distance away.

This is a point which is very apt to be overlooked, and in this connection the following extract from a table, compiled, I believe, by Mr. Howard Farmer, may be useful.

Distance of nearest shadow, or, if sun is not shining, of nearest important object.	Ratio of Exposure.
10 to 30 ft.	16
30 to 100 ft.	8
100 ft. to 100 yds.	4
100 yds. to ¼ mile.	2
Beyond ¼ mile.	1

My own practice, which I find works well enough, is to test the light with a Wynne meter, and then give about ¼ the indicated exposures.

Illustrations, No. 1 and 2 show the control over the proportions of a picture that lenses of varying focus give. No. 1 was taken with a 5-inch lens, and No. 2 with the Adon at 20-inch focus (7¾ bellows length), but in the latter case the camera was moved back in a straight line until the foreground tree was about the same size as in No. 1.

The difference in the distance behind the tree is striking. The road which in No. 2 extends almost entirely across the middle distance is hardly distinguishable in No. 1. Also notice that while in No. 1 the surface of the field seems fairly level, in No. 2 we plainly feel that it drops pretty steeply downhill just beyond the foreground.

To sum up, the advantages of the Adon over the usual form of telephoto lens appear to me to be: that it can be used if required, on a fixed-focus hand camera; that it forms in itself a complete telephoto lens; that it is very portable, weighing only about 4½ ounces, and so does not require such a solidly built camera as the older form; and lastly, that it is very reasonable in price.

MIXING COLOR
by GERALD JONES, AUCKLAND, N. Z.
A Prize Picture in the Imperial
Competition, England

How to Develop, with After Processes

By F. Leach

So many new subscribers have recently been added to Camera Craft's *subscription list that the publishers are led to believe that the frequent requests for a serious article on developing come from a large number of readers who would really welcome such a treatise. To gratify this seeming want we have arranged for a series of articles by Mr. F. Leach, a well known writer, and present this, the second article, with the statement that it is not calculated to interest our old subscribers, but is simply for the new devotees who are just starting on their journey toward success. We feel that this space is well spent and are sure that our old friends will not begrudge the effort we are making to instruct the novice. Should our old friends number among their acquaintances any beginners in Photography, we trust that they will draw their attention to this series.*

SECOND PAPER

As we have already asserted, the hard-working developers, such as pyro or hydrochinon, are not best suited for the development of under-exposures, yet there may be cases where metol is not at hand. In this situation it will be well to know how pyro may be used, in connection with under-exposures. We give Seed's formula, for normal exposures:

1. Sulphite of Soda (crystals) ..... 4 ounces
   Pyrogallic acid ..... 1 ounce
   Sulphuric acid .....10 drops
   Distilled water .....16 ounces

2. Sal-soda (crystals) ..... 4 ounces
   Water .....16 ounces

To develop take 1 ounce No. 1, 1 ounce No. 2, and 8 ounces water. If the plate has been correctly exposed, the high lights should become visible in about 50 seconds; and if this is not the case, then we may conclude that we have a case of under-exposure to deal with. Remove the plate from the developer and place it in a tray of clear water. In the above formula, No. 1 regulates the contrast and density, while No. 2 governs the amount of softness and detail. By this it will be readily seen that by decreasing the proportion of No. 1 and using more of No. 2, we will have a developer more suited for brief exposures. Too large an amount of alkali will tend to cause fog and stain. After the developer is thus changed to meet the requirements, the plate may be taken from the tray of water and the development continued. Another method is to keep the pyro and soda solutions in separate trays. In one tray have water 2½ ounces, sulphite of soda 4 drams, pyro 4 grains, and in the second tray 2½ drams carbonate of potash,

water 3 ounces. As soon as we find that the plate is under-exposed, it is only necessary to remove it from the normal full strength developer, and after rinsing it under the tap, immerse it for a few seconds in the pyro solution contained in tray No. 1. Then remove the plate to tray No. 2, until the detail is fully out. Proper density is secured by returning the plate to tray No. 1 until development is complete. By this "two-tray" process we have the plate completely under control and it cannot gain in density or in detail too quickly.

If the beginner would try this method when developing snapshots, with pyro, he would doubtless secure a much better quality in his negative. As a general rule snapshot pictures show evidence of under-exposure; this is especially the case with snapshots taken during the fall or winter months. A snapshot taken at this time of year and developed in a full strength pyro developer will yield a negative that is practically worthless. The print made from such a negative presents the appearance of daubs of "soot and whitewash," to use a familiar expression.

I have seen a print, made from a negative which had been carefully developed with pyro, and to judge from the abundance of soft detail that appeared in the picture, I should have said that the print had been made from a negative that had been given a normal exposure. It afterward appeared that the plate had been purposely under-timed, in order to show what could be accomplished by careful development.

UNDER DEVELOPMENT

The second class of weak or thin negatives are caused by under-development. The under-developed negatives present much the same appearance as the negative resulting from under-exposure. If a plate is taken from the developer and placed in the fixing bath, before the developer has had time to bring out the detail in the shadows, then the resulting negative will not yield a very satisfactory print. When a plate is placed in the developer it continues to gain in detail and contrast, up to a certain point; after this point is reached, any further prolongation of development will only cause greater density and perhaps chemical fog will also result. Then the question is: When shall development be stopped? This is an important question, for a large proportion of negatives are spoiled at this stage. The experienced worker will be able to tell when development is completed, by noting the appearance of the negative. The amateur will be able to tell in the same way, after a few trials. But if we are to judge by the appearance of the negative, when development is complete, it is obvious that we must stick to one brand of plate. To illustrate: With a well-known brand of double-coated orthochromatic plates, development can be stopped when the image is fully visible; while with other plates, development must be carried until the image is completely buried, or in other words, until the whole surface of the plate has begun to blacken over. Supposing we carry development until the image is buried; and after the negative has been fixed, it should prove to be too dense, then next time we would not carry the development so far. When developing plates with metol, the development should be carried considerably farther than usual, as plates developed with this substance have a tendency to lose density in the fixing bath.

If the operator desires to have a more certain way of knowing how far to carry development, he would do well to study the method known as time or factorial development. This system was introduced a few years ago by Mr. Alfred Watkins,

and it has proved to be most successful. In using this system, the plate is placed in the tray, and then the time is counted, from the instant the developer is flowed over the plate until the first appearance of the image. In developing with metol, the multiplying factor is 30; so that if the time between the pouring on of the developer and the first appearance of the image, is 6 seconds, then the total time of development would be found by multiplying by the factor for metol, 30 x 6—180. 180 seconds, or 3 minutes, would be the proper time to leave the plate in the developer. If the image did not appear until 20 seconds, then the whole time of development would be, 20 x 30—600 seconds, or 10 minutes. If a negative of proper contrast or density does not result from using the factor 30, then another factor may be tried. It is to be remembered that as soon as we find a multiplying factor to meet our requirements it can be used for exposures of any length of time, and a good negative will always be the result. The multiplying factor will vary with the different developers, thus the factor for metol is 30, the factor for a weak pyro developer would be 14.

HOW TO FIND THE FACTOR FOR ANY DEVELOPER

After a few trials any one may find the multiplying factor for any given developing formula. We may have decided to use a metol-hydrochinon developer, and, therefore, wish to ascertain the multiplying factor. Place the plate in the tray and pour on the developer. Carefully note the number of seconds elapsing before the first appearance of the image. Perhaps it may be 10 seconds. Now note the time from this point until the plate is removed to the fixing bath. The time may be 4 minutes. After this plate has been fixed examine it, and if it proves to have sufficient contrast and density to suit the requirements, we can proceed to figure out the multiplying factor for our metol-hydrochinon formula, as follows: Time from pouring on of developer to first appearance of the image was 10 seconds. Time in developer was 4 minutes or 240 seconds. Therefore we find the factor for metol-hydrochinon by dividing 240 by 10—24, the factor required. We can of course find the multiplying factor for any other developing formula by the same method. Factorial development offers many advantages over the other method. As it is only necessary to watch the plate for the first few seconds the tray may be covered for the remaining time. In this way there may be no danger of injuring the plate from the light of the dark room lantern. Although ruby light is usually considered safe, experience has shown that it is not a complete protection. That is certainly the case with the extra rapid plates to be found on the market.

Negatives which are too thin may be much improved by intensification, but this process will seldom have to be resorted to, if we pay proper attention to the subject of exposure and development. Having considered thin negatives, caused by under-exposure and under-development, we will now turn our attention to thin negatives caused by over-exposure.

OVER-EXPOSURE

The negative resulting from over-exposure will be full of detail, but little contrast will be found between the high lights and shadows. When the plate is exposed in the camera it takes a certain length of time for the light to impress the image upon the sensitive plate, and any longer exposure will not only be useless but may cause a worthless negative. All are familiar with the phenomenon

exhibited when a sheet of silver paper is left in the frame for too great a length of time. Up to a certain point the print gains in contrast and detail, then gradually it begins to darken, and finally grows black all over. A somewhat similar process occurs when a plate is exposed in the camera too long. However, it is possible to save an over-exposed plate by careful development. When we were dealing with under-exposures the object was to hold back the high lights or strongly lighted parts of the picture until the developer should have time to bring out the detail in the shadows. And, in order to accomplish our purpose, we altered the proportions of the alkali and pyro used in the devoloper. We increased the amount of alkali and reduced the amount of pyro. Now in cases of over-exposure we wish to keep back the detail until the high lights have gained sufficient vigor. Suppose we start to develop a plate in a solution prepared for a normal exposure. Upon flowing the plate with developer the image flashes out quickly, the high lights and shadows appearing almost simultaneously, and in a short period the whole plate will be dull and flat. By this action we know that the plate has had too much exposure. The plate must be taken from the developer as quickly as possible, and washed thoroughly under the tap. This will stop the plate from developing any further. Now the old developer should be thrown away and a new solution prepared. Use the same quantity of pyro and sulphite of soda as before but only a very few grains of the accelerator (carbonate of soda).

Upon placing the plate in this solution we will notice that the high lights will begin to grow more vigorous and the general tone of the image be much improved. If the plate does not gain sufficient contrast in this developer we can gradually add dry pyro until the developer works in a satisfactory manner. In treating plates that are very badly over-exposed, the mere alteration of the proportion of pyro and alkali will not be enough; the plate should be taken from the normal developer and placed in a tray containing simply pyro, water, sodium sulphite and a little bromide of potassium. The following formula is recommended:

Sodium sulphite (powdered)	1 ounce
Pyrogallic acid	4 drams
Water	8 ounces
Bromide of potassium	10 drops

By proceeding along these lines, we will secure a negative of good printing quality.

HYDROCHINON AND OVER-EXPOSURE

Hydrochinon is one of the best developers known for use with over-exposed plates. In composition it much resembles pyro but works slower and gives greater contrasts. The following formula will give good results with over-exposed plates:

1.

Sodium sulphite (powdered)	6 drams
Hydrochinon	2 drams
Bromide of potassium	1 dram
Water	12 ounces

2.

Carbonate of soda	3 ounces
Water	12 ounces

To develop, take equal parts of No. 1 and No. 2. In the formula given above, it will be noticed that a large quantity of hydrochinon is used; the amount of the bromide of potassium is also increased. The bromide is used to retard the action of the developer, and it also serves to keep the plates free from chemical fog. Although a developing solution made according to this formula is excellent for the purpose for which it is designed, it may be well to state that it would be entirely worthless for use with normally exposed plates.

ACETONE SULPHITE

Acetone sulphite is a new German product, prepared solely for photographic purposes. It is valuable for use with the rapid developers, as by using a very small quantity in the solution, good negatives can be obtained from plates that have received many times the normal exposure. It may seem incredible to the reader, but it is a fact that plates may receive 20,000 times the normal exposure and yet be saved by using acetone sulphite as a restrainer. For ordinary purposes it will be sufficient to add a proportion of about 1% to the regular developer. The over-exposed plate will present the same appearance when developing as if it had been correctly exposed.

BROMIDE OF POTASSIUM

What has been said about acetone sulphite applies to plates that are badly over-exposed. With slight over-exposures, it will only be necessary to add a small quantity of potassium bromide to the developer. Bromide is usually used in the form of a 10 per cent solution made by taking

Bromide of potassium	48 grains
Water	1 ounce

When bromide is used in the developer it acts as a restrainer, holding back the detail, while the high lights or higher tones are gaining in strength. This restraining power only continues for a certain length of time, and if the development is prolonged all restraining power is lost. Another thing to bear in mind is the fact that if the image has begun to be well developed the addition of bromide will be useless. A few drops of the bromide solution must be added to the developer as soon as it becomes known that the plate is over-exposed, and it will be more effective if added before development has begun. The other use of bromide is to keep the plate free from chemical fog, and it is well to work with a small quantity in the developer except in cases of under-exposure.

TEMPERATURE OF DEVELOPER

We will speak of the proper temperature at which the developer should be maintained. This is a matter of great importance, for if the developer is too cold the image will appear very slowly and probably the operator will be lead to suppose that the plate is under-exposed. On the other hand, if the solution is too warm the image will flash out quickly, and the plate will present the appearance of over-exposure. As a general rule the temperature of the developer should be kept at from 60 to 65 degrees Fahr. Hydrochinon is a very slow-working developer and therefore the temperature of the bath should be raised to about 70 degrees when using it. The best way to secure a uniform temperature is to keep the dark room properly ventilated by using a water fan or similar device. Of course, the temperature of the

developer can be lowered by placing cracked ice around the tray, but the reduction of temperature secured in this way will be only temporary, for if the room is very warm the developer will soon be affected.

Now we have given a brief description of weak or thin negatives, and endeavored to point out the best method of procedure in order to prevent these defects. The old saying that "an ounce of prevention is worth a pound of cure" is very true when applied to the art of negative making. It should always be our aim to produce good negatives so that we will not be obliged to find various ways of improving poor ones. But errors will sometimes occur in spite of all we may do, and consequently it will be useful to know how poor negatives may be improved. This we will take up in the October number.

(TO BE CONTINUED)

Garden Gate Portraiture

By FAYETTE J. CLUTE.

A friend of mine showed me his collection of photographic triumphs recently and I remarked upon the large number of full length portraits he had taken, using his own front gate as an accessory. This brought a laugh from both his wife and himself and an explanation followed. It seems that he is an amateur electrician as well as a photographer and the idea had occurred to him that by arranging a camera so that opening the gate would make an exposure, he could secure some very characteristic and entirely unconscious poses by his friends. The idea was worked out so that a convenient and most innocent looking box, supposed to contain a large quantity of earth for the maintenance of some flowering plant, did in reality contain a false bottom capable of holding a camera and allowing it to peep through a hole in the side. To say that many of the results obtained were most charming, is hardly doing them justice. Aside from their own pictorial value they were a constant source of pleasure to the originals who received samples without knowing that they ever had been photographed in so clever a manner. One of the pictures in particular is highly valued by all the friends of a particular young lady who is so unfortunate as to be entirely incapable of looking other than most self-conscious the moment a lens is knowingly pointed in her direction. The bottom of the flower box rests upon an old stump that brings the camera it contains to the right height, while the protection it affords minimizes any danger of light fog on the plate, due to its remaining with the slide drawn for quite extended periods of time. A wire leading to the house permits the circuit to be broken or restored at a moment's notice, thus saving a plate should an undesirable subject present itself. In practice, my friend finds this to occur rarely, even the "Weary Willie" in search of a repast, often furnishing a most capital character study.

An Important Camera Deal

The Eastman Kodak Company Acquires Rochester Optical and Camera Company and Century Camera Company

One of the most important deals in years in photographic trade circles was consummated on July 28th, in Rochester, N. Y., when the Eastman Kodak Company acquired the entire plant and substance of the Rochester Optical and Camera Company.

The proposition as submitted by Mr. George Eastman of the Eastman Kodak Company contained two phases, the second of which prevailed.

The substance of it is as follows: Mr. Eastman first agrees to assume and pay all liabilities of the firm as presented in the statement of June 1st, amounting to $280,000, more or less. He further agrees to pay for the entire concern $110,833.33, less about $20,000 cash on hand. If the liabilities exceed $280,000, the amount of the excess will be deducted from the amount paid to the company; if the liabilities are less than the estimate, he will pay the difference to the company. On the other hand, the company transfers to him the name, good will, franchise, trademarks patents and contracts of the Rochester Optical Company. The deal is a complete transfer, the company retaining no interest whatever in the business.

Mr. Eastman's offer calls for the payment for the plant by January 1, 1904. At the present time it is unable to state what percentage the stockholders will receive. The common stockholders will receive nothing. As to the preferred stockholders nothing definite will be known until January 1st. In the meantime Mr. Eastman has agreed to sell the assets and turn the proceeds over to the company. If they correspond to the valuation of the assets as estimated by the company, the amount which the preferred stockholders will receive will be about $89,000. The amount is expected to be about 2 per cent of the preferred stockholders' investment.

The Century Camera Company was secured some weeks ago by the Eastman Kodak Company. This leaves but three camera manufacturing concerns of importance not controlled by Mr. Eastman, the Gundlach-Manhattan Optical Company, the Folmer & Schwing Manufacturing Company and the Seneca Camera Company.

On the Rim of the Yosemite

Arnold Genthe's picture, "On the Rim of the Yosemite," printed as a frontispiece in the August CAMERA CRAFT has been called by competent critics, "the best western landscape of the year." An extra supply has been printed on extra heavy plate paper with three-inch margins. Copies securely packed in a heavy mailing tube can be had by sending ten cents to the CAMERA CRAFT office.

Light on Mr. Wilson's Troubles

Suggestions from Amateur Studio Builders who Seek to Help Him in His Troubles

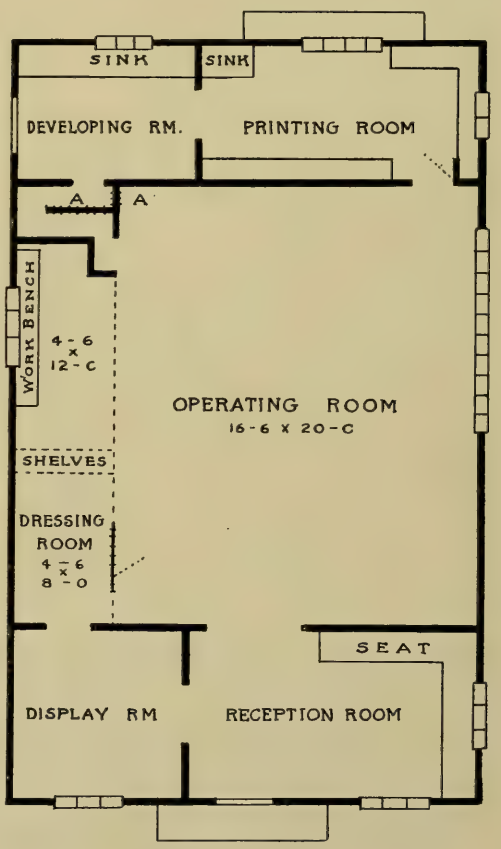
In the May number of Camera Craft *Mr. Herbert Wilson presented a problem for the consideration of those photographers who have reached the stage when studio and work rooms for their exclusive use seem necessary. He furnished sketches and detail plans showing his ideas of studio construction as far as he had gone and asked for advice and assistance from his amateur friends.* Camera Craft, *appreciating the value of such a discussion, offered the sum of $25 for the best illustrated article on a practical studio building for amateurs. The final date upon which matter upon this subject can be received is October 15th, and intending contributors are urged to send in their articles earlier if possible. Many interesting communications have been received suggesting improvements upon Mr. Wilson's plans, irrespective of the competition, some of which are printed as suggestions to those who intend to enter the contest.*

A Work Bench Suggested

By Mrs. J. W. Tolman

If for some special reason you wish your operating room the width of the building you will find an entrance as high as the top of the door and covered (AA) a great aid in keeping light from the dark room and also protection from persons opening the door. With the arched doorway into the reception room giving an opportunity to use the camera at long distance, you could dispense with some of the width of the operating room, so why not have a general work room with a work bench? Then the rest of the space could be used for a small dressing room at one side of the operating room.

The space underneath the seat in the reception room can be utilized for storing stock not in general use. Providing you use 20 x 20 feet for the operating room you will want your printing and finishing room larger



MRS. TOLMAN'S SKETCH

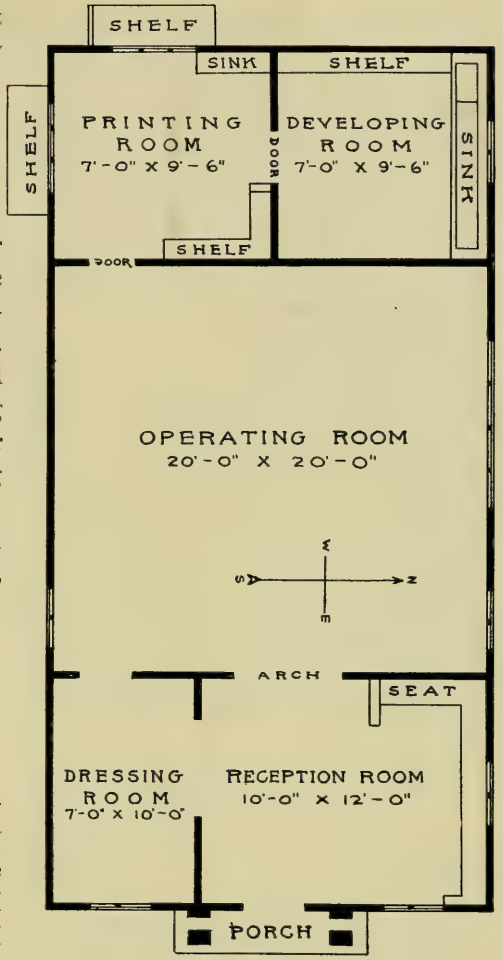
than your dark room. A door direct to the operating room will save many steps, and will be better than going through the dark room each time. The reception room is ideal—just a few choice pictures on the wall, but whether your object is for the pleasure of yourself and friends, or to gather in the shekels from the general public—they all want to see a general display—the more variety the better. Therefore, I have changed the original dressing room to a room for displaying photographs on the walls, and a chair and desk will be all the furnishing needed.

I am not an amateur, but have had practical experience under the skylight, and offer these suggestions, believing them to be practical.

Would Change Work Rooms

By Chas. C. Foley.

Mr. Wilson's troubles in studio building as told in Camera Craft recently interested me very much. I like the general arrangement of his studio, but I have a few suggestions to make which I have set forth in the accompanying sketch.



AN ARRANGEMENT BY CHAS. C. FOLEY

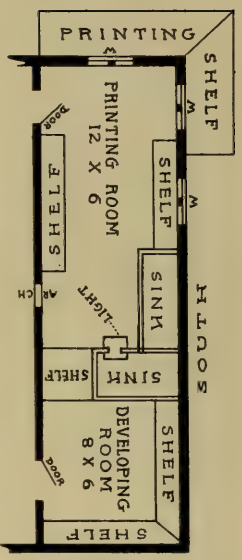
I would add a little more space to my reception and dressing rooms, making them 10 x 12 feet, and 7 x 10 feet respectively. The operating room will do very well at 20 feet square, but all the sources of light except the main side window and skylight should be screened or draped until they are light-proof when the room is being used. I would also add one foot more space to the width of the developing and printing rooms, and would change them from the way Mr. Wilson planned them. I would place the developing room on the north side and the printing room on the south side, having two windows with outside shelves, as shown in the drawing.

He will then be able to print at his window at any hour of the day, while in the way he has it arranged he would either have to wait until afternoon or carry his printing frames out of doors to print, in case he wished to print by sunlight. I think Mr. Wilson has taken hold of a proposition which will be of untold benefit to a great many others who contemplate the building of a small studio for their own use, and while I expect to see an article in Camera Craft in answer to Mr. Wilson's dilemma which will teach me something, I, nevertheless, send you my rough sketch showing what I would do as a means of improving his plans.

Arrangement of the Dark Room Light

By Everett E. Bennett

I would suggest to Mr. Wilson that all of the inside partitions in his studio be constructed of matched sheathing. I also have an idea as to the arrangement of the dark room which I have set forth in the accompanying drawing. The abundance of shelf space in both the developing and printing rooms will be appreciated by those who are always in need of one more place to set things, while the arrangement of the sinks is economical as well as practical. I would call Mr. Wilson's especial attention to the dark room light, which I believe to be economical and convenient. The light is to be placed on the shelf in the center and windows of red glass opening into both printing and dark room placed on both sides of the light. This arrangement permits of the use of the light while printing any of the gaslight papers in the printing room.



THE WORK ROOMS ACCORDING TO EVERETT E. BENNETT

Photographs of Explosions

For some years past Prof. Harold Dixon has been experimenting with the photographs of the flames of explosions, and in a lecture delivered at the Royal Society's soiree he described the method and some of the results. The explosions are reproduced in a horizontal tube, in which a glass tube is inserted. A photographic film, run rapidly off a reel, moves at right angles to the tube, upwards or downwards, and the flame photographs itself on the film as a bright line. The speed of the moving film is known, and the inclination of the bright line to the horizontal enables him to calculate the velocity of propagation of the explosion wave—just as one might calculate the speed of a train by observing the angle of inclination of rain drops in a shower through which the train was passing. Prof. Dixon mentioned some other interesting effects observed by his photographs. A sharply-defined wave is reflected from the end of the tube, traveling at a slower rate than the first wave—its speed varying with different explosive mixtures. For instance, the explosion wave of mixed hydrogen and oxygen travels at about 2,900 yards a second, the following, or reflected wave, at about 1,600 yards a second. Prof. Dixon believed that if these reflected waves were propagated as sound waves, then the temperature of the gas mixture could be deduced from the inclination of the lines. On this hypothesis he worked out the temperature of an explosive mixture of cyanogen and oxygen at about 5,258 deg. Centigrade. Prof. Dixon also showed some highly interesting photographs of sound waves (propagated simultaneously from the other end of the tube), meeting and traveling through explosion waves.

A THREE WEEKS OLD NIGHT HERON

Pictures of Baby Birds

By WILLIAM S. RICE

Illustrated by the writer

There is a strange interest in the photographing of live wild birds, an interest that lives longer than in most photographic pursuits. Some workers have gone to the extent of rigging up apparatus designed for the sole purpose of catching the birds unawares in their native haunts. Others have made cameras mounted on gun stocks to picture the flight of the birds, while still others lay in wait for hours until the little creatures approach near enough to be photographed. But here is a photographer who has an original method of making bird pictures; a method that has the merit of rendering composition, lighting and surroundings an easy task. He finds the baby birds in their nest, takes them home, makes them comfortable, photographs them and returns the nestlings to their cozy home again. The process may not possess as much interest to scientists, but to nature lovers the pictures are full of interest.

An art that is fascinating as well as instructive is the photographing of live baby birds, either in their native haunts or in surroundings as near like them as possible. The many difficulties which beset the path of the worker in this line account for the

fact that of the many plates exposed on such subjects the word "failure" is plainly written on the majority of them. But, if the student of Photography be possessed of unlimited patience and does not mind spoiling a few plates, success is fairly easy and he will get pictures, which are not alone interesting as pictures but are valuable from a scientific standpoint in the study of nature.

By no other means can the habits of wild creatures and their actions be so truthfully portrayed. This fact is realized by publishers and writers on natural history,

AN AMIABLE YOUNGSTER

and the days of books on this latter subject grotesquely illustrated with stiff and unnatural drawings have passed, and instead we have books which tell us of the lives and habits of living creatures, illustrated with photographs, often colored and an almost exact counterpart of nature itself.

One must know something of the habits of the birds he would photograph before he can expect anything like success; and as such knowledge is acquired by long study and keen observation it is quite essential to possess these qualifications in order to excel in this chosen line.

The young chicken hawks proved to be docile subjects

A long-focus camera which has a bellows extension and which takes a picture either 4 x 5 or 5 x 7 was used by the writer in making the bird studies from which the accompanying engravings were made.

Some of them were taken on the shady side of a building, not in direct sunlight, but rather in a strong diffused light. Isochromatic plates were used and a liberal exposure was given. The development was accomplished with a somewhat diluted developer in order to counteract any danger of over-exposure. The developer was strengthened from the stock solution when the image came up too slowly. The exposures were made about ten or eleven o'clock on the morning of a clear day.

The baby robin had fallen from its nest in the apple tree in the back yard and when picked up he was considerably shaken up and somewhat dumbfounded at his new surroundings. In order to make him feel at home, I arranged an apple twig in a jar of water for a perch and placed a sheet of white cardboard several feet back of the subject so that no objectional shadows might fall upon it and make a "spotty" background.

The robin sat very contentedly, scarcely moving except that a slight vibration was noticeable in the throat while breathing and that he occasionally uttered a shrill little chirp, which no doubt was a call for his mother.

The camera and tripod were next brought into play and the bellows drawn out to almost its entire length in order to obtain a life size portrait of the little fellow. After obtaining a good, clear focus the lens was stopped down to 32 and an exposure of one-half of a second was given. This little bird model behaved so well that I

FIRST STEPS

A BABY ROBIN

secured another excellent photograph of him, though somewhat larger in size. Most bird photographers consider young robins very difficult subjects to work with because of their restlessness and timidity; but my model kept quiet long enough for several exposures.

Blue jays when about sixteen days old leave the nest and are then the most interesting of subjects for the camera. Their beautifully marked plumage of blue, black, gray and white is about as pleasing to the eye as any color combination can be. The infant pictured in the accompanying illustration was caught in the woods while the writer was riding along on a bicycle, brought home in a coat pocket and photographed. By having a friend near by who snapped his fingers the bird's attention was held long enough to obtain his portrait.

The young chicken hawks proved to be very docile subjects despite the fact of their having such a bad reputation. The dead limb of an old oak tree was introduced into the composition as a perch for the young warriors. They were lightly set upon this and they "posed" themselves, not, however, without keeping a sharp lookout upon the operator.

These bird studies require unlimited patience to secure, for not only is the operating of the camera and the handling of the subject a source of much discouragement, the securing of the models is another serious difficulty. When one is on the lookout for such subjects and he makes his wants known to his boy friends many fine opportunities for photographing birds come his way. Of course, the birds are always taken back to their old haunts again after successful portraits are obtained, so there is nothing cruel or unnatural about the operation.

Size of Objects in a Photograph

By Ira Hamilton in *Photographic News*

How often, when examining a collection of photographs, do we wish for some means of ascertaining the size of some of the objects, a geological specimen for instance, and how much the value of the photograph would be enhanced if it were made itself to give the information. And nothing can be simpler. One of the most useful things—next, in fact, to a pocket knife—that a photographer can carry is one of the neat folding-in-four one-foot rules that may be bought for a few cents, and better still of ivory for about a dollar. By its aid he can find, near enough for his purpose, the focus of his lens or that of his less knowing friend, and the value of the stops thereof when they are not marked, or correct them when wrongly marked, which is oftener than is generally supposed; and indeed so many other uses, that within a month after beginning to carry one he will wonder how he ever could have done without it. Such a rule, opened out, of course, and laid in some suitable place and in a suitable position, in the picture shows the relative size of everything included, and often gives inestimable value to what without it would have been useless. I have carried such a rule for years, and rarely expose on a subject without it, and recently got five dollars for a print for reproduction solely because it enabled the exact size of a boulder to be ascertained.

CAMERA CRAFT

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Edited by CARL E. ACKERMAN

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On page 83 of the August number of CAMERA CRAFT we reproduced a photograph by E. N. Sewell of San Francisco, entitled, "Over the Hill," and through an error failed to give the proper credit to the photographer. Mr. Sewell has a collection of exceedingly interesting prints on display at the California Camera Club's rooms, this month. Several of which we anticipate publishing in the near future.

The Association Review

The first number of the *Association Review,* the annual publication of the Photographers' Association of America, has just been issued. In appearance, press work and arrangement, the publication is decidedly unique. The illustrations are superbly printed, well selected, and illustrate in a most satisfactory manner the progress of the professional worker.

W. I. Scandlin contributes a well-written history of the Association embellished with just enough detail to make interesting reading. Chas. W. Hearn has an article entitled, "Some Suggestions as to the Aim of the Producer of Modern Photography," written in a breezy, unconventional vein characteristic of this well-known photographer.

With a number of short articles, several bits of wisdom, the Constitution and Bylaws of the organization, and a list of its members, the publication will be of great interest to the photographers at large. Mr. C. R. Reese, the vice-president of the Association, who had charge of the preparation of the book, deserves the thanks of the Association. His was no light task.

The Guileless Amateur

During the past few weeks several California photographers have been compelled to take to their beds as a result of carelessness in handling explosive flash powder. It is incomprehensible that in these days of the photographic journal, there remain so many photographers laboring under the apprehension that any flash-light compound is safe under any conditions. The manufacturers of the powder are in a measure responsible for this ignorance on the part of the public, for nearly every advertisement says that the compound in question is "safe, odorless, smoke-

less." Few, if any of the manufacturers, caution possible purchasers not to use the powder in confined apparatus. Druggists, when selling dangerous chemicals, are compelled by law to label the package plainly so that no mistake be made in the contents. In many states the druggist is compelled to keep a register in which is entered the names and addresses of purchasers of dangerous chemicals. The manufacturers and dealers handling dangerous flashlight compounds should be compelled to adopt similar precautions for the benefit of the public. Every manufacturer of aluminum powder apparatus should be compelled to stamp his particular machine: "Do not use an explosive powder in this lamp." Photographic salesmen should enquire of the purchaser in every instance particulars of the machine in which the powder he sells is to be used.

Unless some action is taken the guileless amateur photographer will continue to scatter his fingers over the land forever.

Colonel Ockerson's Situation

In view of the recent controversy between Mr. Alfred Stieglitz of the Photo-Secession and Mr. Julius Strauss of the Photographers' Association of America with reference to Photography at the St. Louis Exposition, photographers at large will be interested at the stand each will take in the organization of the committee of review and selection suggested by Colonel Ockerson in his article in this issue of Camera Craft. The organizations selected for representation in this important committee include both the national association of professional photographers and the Photo-Secession. Both Mr. Strauss and Mr. Stieglitz are prominent in their respective organizations, and it is more than likely that they will be selected to serve on the committee because of the prominent stand they have taken in the matter.

However, Colonel Ockerson, in his most amiable desire to harmonize matters, has constructed a most beautiful situation. It is not at all sure that the Photo-Secession will fall in with Mr. Ockerson's ideas. In his article in the August Camera Craft outlining the objects of the Photo-Secession Mr. Steiglitz said:

> The object of the Photo-Secession is not, as is generally supposed, to force its ideas, ideals and standards upon the photographic world, but an insistence upon the right of its members to follow their own salvation as they see it, together with the hope that by force of their example others, too, may of their own free will see the truth as they see it. This hope can never be realized by weakly accepting standards in which we have no faith, nor by compromise, which never yet has satisfied either party to a question. If the "way" we have chosen leads nowhere we have but fooled ourselves; but if ours is a path toward truth, then it argues but a weak faith on our part willingly to follow any other.

Thus having established the slogan of "no compromise" for the Photo-Secession it remains to be seen whether or not the efforts of the amiable Colonel Ockerson will bear fruit.

Camera Craft can see no possible objection to the make-up of the proposed jury and if the appointments of the respective organizations are carefully made there is a possibility that Photography will attract more than passing interest at the big show.

THE "HAVERFORD" AND "OHIO," MARIPOSA GROVE *Courtesy Sunset Magazine*

A Method for Focal Length of a Camera Lens

By Reginald S. Clay, B.A., D.Sc., in *Photography.*

The following method of obtaining the length of a photographic objective requires no apparatus beyond an ordinary two-foot rule and the camera itself. It is a modification of Abbe's method for obtaining the focal length of a micro-objective, and I do not think it has been previously published.

Make two marks on the ground glass some definite distance, *a*, apart, say 3 in., on a horizontal line across its center. Set up the rule at a short distance in front of the camera, say 15 in., and adjust it so that its image coincides with the marks on the ground glass. Observe exactly how far apart, *s*1, these marks seem on the image of the scale. Let us suppose that they appear to be 6¼ in. apart.

Measuring the Focus of a Lens.

Remove the scale to a greater distance, *d*, from the camera—perhaps another two feet. Without moving the lens of the camera, focus it so that the image shall again coincide with the two marks, and once more observe the apparent distance, *s*2, between these two marks. Let us suppose it is 20 in. The focal length will then be found by *multiplying* the distance apart of the marks on the ground glass by the difference in the distances of the scale from the lens in the two cases in inches (we supposed it two feet further—that is, 24 in.), and *dividing* by the difference in the apparent distances apart of the marks. So that in our case the focal length was—

$$f = \frac{a \times d}{s_2 - s_1} = \frac{3 \times 24}{20 - 6\frac{1}{4}} = \frac{72}{13\frac{3}{4}} = 5.2 \text{ inches.}$$

If the camera is one in which the focussing is performed by moving the lens, the actual distance from the lens to the scale must, of course, be measured each time, after the latter has been focussed, in order to find how much further the scale is from the lens in its second position.

With a little trouble, it is not difficult to arrange the distances, so that the distance apart of the marks may coincide with some exact division on the scale. It may, for instance, be exactly 6 in., and exactly 20 in. in the two cases. The arithmetic will then be very simple.

The accuracy of the result depends upon the care taken in making the various measurements. There should be no difficulty in obtaining the answer within one-tenth of an inch. Theoretically, the method is absolutely accurate, as there are no theoretical errors involved. The positions of the principal points of the lens are not required, and there are no index errors.

To make the distance apart of the marks a whole number of inches—exactly three, for instance—draw two lines slightly inclined to the vertical from the top to the bottom of the ground glass, whose distance apart is 2¾ in. at the top and 3¼ in. at the bottom. Some where near the center, therefore, they will be exactly 3 in. apart. Find this point with great care, and draw a horizontal line to cut them there.

Focussing Scale for Hand Camera.

Having obtained the focal length of the lens, it is a very easy matter to construct a focussing scale to use with it on a hand camera. It is only necessary to divide the *square of the focal length* by the number of inches away of the object, to obtain the distance from the infinity mark on the scale, to the mark at which that object will be in focus. If, for instance, the scale is to be marked for objects at distances of 2, 5, 10, 20 yards and infinity respectively, and if the lens has a focal length of 5 in., we must divide 25 (the square of 5) by 72, 180, 360, and 720 respectively; and the answers .347, .138, .069, .035, will be the distances in inches from the infinity mark to the marks which will have to be numbered 2, 5, 10, 20.

Color Prints on Rotograph

By B. C. Roloff

A great deal has been written about toning bromide paper, but the subject has not been exhausted by any means. Rotograph is especially adapted to color toning, as the paper stock used is of the best, hence the print comes out of the toning bath as brilliant, if not more so, than when first made, which can hardly be said of all of the bromide papers now being sold.

To secure the best results, the print should not be allowed to attain too much vigor, as the best results are to be obtained from thin images.

After fixing and well washing, the prints should be bleached in either a bi-chloride of mercury and hydrochloric acid bath, as is usually done before intensification, or in the following bleaching bath:

Nitrate of lead ..... ½ ounce
Ferricyanide of potassium..... ¾ ounce
Distilled water ..... 12 ounces

Filter. Wash well after bleaching.

A beautiful brown can be secured by immersing a bleached print in a strong ammonia bath, but to get the best results the prints should be fumed. To do this with the least trouble, take an old plate box and either soak the bottom with ammonia or put half an ounce in a small dish and set it on the bottom. Fasten the print (which may be first blotted) to the cover and close the box. Fume for about 4 minutes and wash well. An even brown tone, free from blotches and stains, is had by this method.

Different shades of brown can be secured by dropping the bleached print in hypo solutions of different strength. The browns secured in this way are very fine, with clear whites.

Immersion in a solution of

Potassium bichromate ..... 1 part
Ammonia ..... 1 part
Water ..... 10 parts

produces a dark brown with a mercury-bleached print, and a reddish-yellow with the lead-bleached print, the yellow being more pronounced when bichromate is added.

A bath of

Potassium sulphocyanate ..... 1 part
Water ..... 10 parts

tones brown and blue-black, according to the length of time a print is immersed.

A solution of

Sodium carbonate ..... 1 part
Water ..... 10 parts

tones red-brown.

Sodium sulphite ..... 1 part
Water ..... 10 parts

tones to a dark brown.

A bleached print immersed in a solution of nitrate of silver, 40 grains to the ounce—to every ounce of which from 10 to 20 drops of ammonia are added—gives a peculiar brown tone.

Immersion in

Sulphate of copper ..... 1 part
Water ..... 10 parts

will produce a pleasing red.

A lead-bleached print immersed in

Chloride of cobalt ..... 1 part
Water ..... 5 parts

tones from green to gray, according to length of immersion. If the green print toned as above directed is immersed in

Sulphate of copper..... 1 part
Water ..... 10 parts

the tone slowly changes to a reddish-gray.

Yellow tones are produced by a bath of

Neutral chromate of potash.... 1 part
Water ..... 10 parts

This color may be changed to different tones as follows:

Brown, by treating with

Permanganate of potash..... 1 part
Water ..... 10 parts

Copper-red, by immersion in

Cupric chloride ..... 1 part
Water ..... 10 parts

Red-brown, by treating the yellow image with

Nitrate of uranium..... 1 part
Ammonium chloride ..... 1 part
Water ..... 10 parts

Deep yellow, by treating the yellow image with

Iodide of potassium ..... 1 part
Water ..... 10 parts

Green, by immersing the yellow image in

Ferric chloride ..... 1 part
Water ..... 10 parts

To obtain a blue tone, the print, after being fixed and washed in the usual way, is placed direct (without previous bleaching) in a bath mixed in the following order:

Saturated sol. ammonia-citrate of iron	1 dram
Saturated sol. potassium ferricyanide	1 dram
Hydrochloric acid	2 drams
Water	5 ounces

In this bath the black print turns rapidly to a dark blue, changing to a rich Prussian blue. After the desired tone is obtained, the print should be well washed in running water to clear the whites.

A still darker blue or blue-black may be obtained by using 10 ounces of water in the foregoing bath, instead of five.

A beautiful warm black tone is obtained by first bleaching in the bichloride of mercury bath, well washing, and immersing the print in a bath composed of

Water	5 ounces
Regular combined toning and fixing bath	½ ounce

and again well washing.

Pretty green tones may be had by adding about 20 grains of uranium nitrate to the blue-tone bath given above. In this case change the print from water to the bath until the desired tone is secured, as prolonged soaking will color the whites. Wash in changes of water.

All of these tones, in an infinite variety of shades, are easily produced on black and white rotograph prints, but care must be taken to wash the prints well between the chemical baths and to *thoroughly* wash in running water when the desired tone is secured.

A Photographic Digest

By Dr. H. D'Arcy Power

Local Reduction of Density

Kindly give a formula for reducer for taking undesirable high lights out of negative with a brush on removing from the fixing solution. Red Indian.

Local reduction with a brush requires the utmost care in order to avoid sharply defined outlines marking the chemical action. The most active reducer for this purpose is one made by mixing about 25 minims of a saturated solution of iodine in alcohol with 30 minims of a saturated solution of potassium cyanide in distilled water. The proportions are not very material, so long as sufficient cyanide solution is added to thoroughly decolorize the iodine. If this mixture is used at its full strength it will entirely remove the silver image in the course of a very few seconds, therefore it is necessary to dilute it considerably if you wish the action to be under control. If you wish to confine the reduction within the limits of a decidedly sharp outline, you should apply the reducer to the dry negative in order to prevent lateral spreading; the spreading may also be further provided against by the addition of a few drops of strong gum solution. If, on the contrary, you wish to reduce a portion and leave softly vignetted edges, it is advisable to thoroughly soak the negative until it is soft, and then blot off the surplus water before applying the reducing agent. The reducer, in this case, should be well diluted (about one dram of the mixture being added to half an ounce or more of water), and it should be applied by means of a fairly large tuft of cotton wool, well saturated with the diluted mixture. It should be applied rapidly, allowed to remain in movement for a few seconds, and then rinsed rapidly beneath running water. This should be done at very frequent intervals until a sufficient reduction has been attained, when the plate must be very rapidly and liberally washed free from all chemicals.—*English Amateur Photographer.*

Glossing Platinotypes for Scientific Records

There are some purposes for which a platinum picture on a glossy surface would be invaluable, notably in photographs of scientific interest in which an exact record

of minute details is required. Hitherto such subjects have always been taken by preference on gelatino-chloride paper notwithstanding the great disadvantage of the variable permanency of that medium. I have for some time employed my own modification of the carbon process for such subjects, the print being made on very thin celluloid, which is backed with white paint and the image viewed through the celluloid. A recent number of the *British Journal of Photography* gives an abstract from Hubl's work on platinotype, describing how a platinum paper with a glossy surface may be prepared which is as follows:

The paper is first coated with a 5 per cent. solution of gelatine, using 10 c. c per square meter. If very rough paper is used, it is preferable to fasten it upon a drawing board to keep it flat in drying. For black tones sensitize with:

Iron solution*	4 c. c.
Potassium platino-chloride (1 to 6)	1½ c. c.

For development use 50 c. c. of a 25 per cent. solution of potassium oxalate, with 2 c. c. of the platinum solution.

For brown tones sensitize with:

Iron solution	20 c. c.
Potassium platino-chloride (1 to 6)	8 c. c.
Citrate of mercury solution (1 to 30)	5 c. c.
Citric acid solution (1 to 2)	5 c. c.

4 c. c. of citrate of mercury solution will give pure sepia tones, and by further reduction, or increase of this ingredient, the color may be modified from brownish black to reddish sepia.

For development use:

Water	1000 c. c.
Oxalate of potash	200 grams
Citric acid	20 grams

If 10 c. c. to 50 c. c. of citrate of mercury solution be added to the developer the quantity of this ingredient in the sensitizing solution, may be reduced. This will also accelerate the development. The pictures may be developed cold with the brush, or hot. In the latter case the shadows are not so deep, but a purer brown. Baron von Hubl has not yet completely cured one difficulty. In using a large quantity of mercury there is a tendency to yellowness in the high lights. This generally appears after fixing, in the process of washing, and may be traced to the presence of remnants of the sensitizing and developing solutions, which are affected by light. It is, therefore, desirable, in such cases, not to expose the prints to light until well washed. The gloss depends upon the treatment of the paper. If it is placed in the drying box in a moist condition, the gelatine softens and dries with a glossy surface. If dried at the ordinary temperature, the surface is much duller. Hot development always produces a glossy surface, and if this must be avoided the gelatine solution should receive an addition of arrowroot.

*(In Von Hubl's work, "Der Platindruck," the iron solution consists of 20 parts of ferric oxalate dissolved in 100 parts of water, to which 142 grams of oxalic acid per 100 c. c. should be added.)

How to Restore Old Dry Plates

Plates or films which have been long stored undergo changes resulting in their exhibiting so-called chemical fog when developed. In a communication to the Jubilee Congress of Royal Photographic Society of Great Britain, M. Leon Vidal asserts that a short immersion in a 1 per cent solution of Ammonium Bichromate, followed by washing and drying, will entirely remove the defect, and further that this treatment can be applied after exposure, in which case the drying can be dispensed with. M. Vidal is one of the best known of continental workers so that this announcement is likely to mean a great saving of valuable photographic material.

Pinhole Photography

In a July number of Photography, M. Combe contributes an extensive article on the above subject. The writer chiefly concerns himself with the technique of making and measuring the holes. In the latter process he uses a rather ingenious device. He places a hundred needles side by side in close contact, measures their extent, which number divided by 100 gives the diameter of each individual needle. M. Combe believes that the diameter of the pinhole should be adapted to the size of the plate and states that the proper extension of the camera to obtain the maximum of sharpness should be 10,000 times the square of the diameter of the pinhole, expressed in hundredths of a m. m., when copying same

size or one half this when working in the field. My own experience in pinhole work has been almost entirely confined to pictorial work, and in that field I have not found it necessary to consider the question of size of pinhole except in relation to the amount of diffusion I desired. This has led me to use larger holes than those suggested by M. Combe, namely, 0.75 and even 1 m. m.

Direct Color Photography

In the industrial number of Camera Craft I gave a resume of the various processes for obtaining photographs in color and among them an account of the bleaching-out process. In a recent number of the *Photographische Rundschau* Dr. Neuhaurs gives his latest formula for preparing the sensitive plates. It is as follows: To 100 c. c. of a warm 10 per cent solution of gelatine add the following:

Methyline blue in 0.2 per cent aqueous solution	6 c. c.
Auramine in 0.2 per cent alcoholic solution	1.5 c. c.
Erythrosine in 0.5 per cent aqueous solution	3 c. c.

Filter, and coat opal plates with same, dying them in the dark. Before using they must be immersed for five minutes in an etherial solution of peroxide of hydrogen. This is made by shaking together 6 c. c. of 38 per cent. peroxide (Merck's) with 200 c. c. of ether, and then decanting the latter. The new technique differs from the old in the use of an etherial instead of aqueous solution, hydrogen peroxide. As this latter dries with great rapidity it can be used immediately before the exposure of the plate. Moreover, the plates before sensitizing are quite staple, and could be produced commercially.

So far Dr. Neuhaurs has not succeeded in coating paper with these dyes, but he suggests that by use of a soluble substratum the gelatine film could be stripped from the opal and transferred to paper.

Paper Negatives

In a past number of Camera Craft I gave an abstract of an article by a French writer on this subject, who among other points insisted on the importance of very thorough development. In a June issue of the *English Amateur Photographer* the editor points out that a Mr. Spiller many years ago demonstrated the importance of keeping the silver image on the surface of the paper, this only occurs when the development is rapidly completed. Ergo, if we need both rapid development and great density, it is quite evident that we must have full exposure, and this is just what experience has taught me, though I was unacquainted with the reasons therefor.

Washing of Plates and Prints

Some time back I reported in Camera Craft a series of experiments made for the purpose of determining the necessary conditions for the effective elimination of Hypo for the sensitive films. One of the results of these experiments was to show that a minimum time was necessary to extract the salt and that this was independent of the fact whether the wash water was flowing over the plate or not. This statement receives a confirmation from the researches of Mr. F. Horsley reported in the *Chemical News* (London, England) on the washing of precipitates, whereby he finds that if two identical precipitates be washed a period of one minute, one with 50 c. c. of water and the other 250 c. c., the latter will not have removed any larger amount of impurity than the former. The time of washing rather than the quantity of fluid being the determining factor.

Warm Tones with Edinol

The Bayer Company publishes the following formula for use with gaslight paper, Velox, etc.:

Edinol	1 part
Acetone sulphite	3½ parts
Sodium, carbonate crystals	3½ parts
Water	100 parts

For brown tones expose 10 times the normal; for red 50 times.

The Carbon Process

In a recent number of Camera Craft I published a new method of producing pictures by the carbon process. By my method transparent celluloid was coated with the pigmented gelatine, sensitized in the usual way and the exposure made by printing through the gelatine. This did away with safe edge and all transfer work and gave a non-revised image, making the carbon process as easy as silver paper. At the end of that article I wrote:

"When the Eliot or Autotype Company coat the same (celluloid) with pigmented gelatine, carbon printing will be the simplest process in existence."

Now after three years I see by a notice in the *Photographische Miltheilungen* (No. 9) an editorial notice that such a pigmented celluloid is now being put on the market by a German firm under a patent. Of course without any acknowledgement of myself. It is, however, not so bad as the action of a prominent photographer in this city, who almost immediately after the publication of my process filled his window with photographs made by the method, above which was a large announcement that they were the product of a new process discovered by himself. As they were done in polychrome by a man who could not paint, I refrained from exposing the lie.

The Actinic Value of Backgrounds

A very valuable contribution to exact photography is contained in a paper of Mayor Hondaille, published in the Bull. Soc. Franc. By a series of experiments he has shown the importance of contrasts in obtaining definition. It would thus appear that a series of black dots of the same size, and receiving exactly the same lighting, impress a photographic plate quite differently according to the color of the background. Thus if a black dot on a white ground require 1 unit of light, it would if on green require 2½ units, on yellow 8 units and on red 25 units. The actual figures obtained by Mayor Hondaille are shown in the following table. The units of illumination are candle meter seconds. That is the light obtained from one candle, burning for one second at the distance of a meter from the object.

1- 2 m. m	100	250	800	2500
1- 3 "	160	400	1440	4000
1- 4 "	240	600	1920	6000
1- 5 "	320	800	2560	8000
1- 6 "	420	1100	3360	11000
1- 7 "	520	1300	4160	13000
1- 8 "	640	1600	5100	16000
1- 9 "	760	1900	6100	19000
1-10 "	900	2250	7200	21500

DIVING BY TOM MURRAY

The Amateur and His Troubles

By Fayette J. Clute

Exposure in Enlarging

A correspondent in Minnesota writes to ask how he can determine the correct exposure when enlarging upon bromide paper. My own practice is to test all negatives for their correct exposure on a certain grade and brand of developing paper and mark the time on one corner. I am then ready for any kind of an exposure. I know my enlarging camera with the light I use requires just twenty times the exposure for a two-fold enlargement that is demanded for a contact carbon Velox print with the light used for that work. I wish to enlarge from a certain negative that is marked ten, and I simply give the bromide paper two hundred seconds and am sure the result is correctly timed. Of course if I change the stop or the magnification, the exposure must be altered to correspond.

Drying One's Negatives

Often this weather one is troubled by water forming in the shape of tears or drops on the film, with the result that the portion of the emulsion so protected dries last with a different density, causing an objectionable mark on the print. The neatest way I have seen of preventing this trouble is to supply one's self with a wide flat brush and using it just barely damp, mop off the surface of the negative as it comes from the wash water. As the brush collects the surface water it is shaken free and again drawn over the face of the negative. Not only is the danger described avoided, but the negatives dry much more rapidly; something that is desirable at all times.

The Texas Way

Down in Dallas they have a street they call Hickory, not because that kind of trees ever grew there, but because Persimmons or Chinquapins never grew right along the side of the street, either. At 540 on this same Hickory street is Menzies Cumming's office. There he gets out the *Southwest Photo*. He does not publish letters from imbeciles who "can't get along without the magazine," he does not print a lot of illustrations that illustrate nothing, he has not even made any brags about his circulation in the three years he has been publishing the magazine. The cover is printed in only one color and it contains no piano or patent medicine advertisements. Just the same, it seems to suit the photographers in that part of the country and might even satisfy others if they made its acquaintance. Ask Uncle Sam to leave your card.

A Plea for the "Record" Maker

I do not quite understand why we all have so much to say against the man who uses his camera to make what we call "only a record." Why is not his way of doing just as sensible as any other if it meets with his own approval? I would rather look over an album containing a lot of these same despised "records" than one that contained a like number of attempts at artistic effects by some one that had little or no real art knowledge, any day. A few weeks ago I had the opportunity of looking over several collections of negatives made by as many amateurs, some ten years ago. They had been left in the hands ot a commercial photographer who had done the printing for their makers. One was a set of these same "records," while the other sets were just such work as the average amateur of to-day is turning out; a view here and another there that he fondly hopes may lay claim to being artistic. There is a standing offer of two dollars apiece for the record set, but the others go into the ash bin if the owners cannot be located. If you feel that art is your only solace, make photographs that contain all the art you can put into them, but if the other fellow finds satisfaction in a different line of work, that is his business.

In putting plates in a rack to dry I have been troubled with flies spotting them, but a sheet of newspaper or tissue paper thrown lightly over the edges of the plates is sufficient to keep them off.—J. S. in *Photography*.

Notes and Comment

An Ideal Shutter

The Prosch Manufacturing Co., of New York, announces a new modification of its hand camera shutters, the Diaplanes, which makes it a safety shutter, that is, one that may be set without exposing the film or plate. By an ingenious device it also does away with the four loose springs that have always been a necessity on the older Prosch shutters. The spring power to actuate the flies is now condensed into very small space so that the shutter can be fitted to the smallest film cameras. This is now the ideal shutter for the kodak and other hand cameras, because it is the only one in existence that can be used with them to give a speed of more than 1-40th to 1-60th of a second. No other diagram shutter works above this. But the diaplane 1 goes as high as 1-200ths of a second with ease, while the diaplane special for hand cameras will go as high as 1-800th if desired. This makes the diaplane the only shutter that will enable hand cameras, for either plates or films, to photograph athletic work, horse, yacht, or bicycle races, flying birds, wild animals, etc. This work requires a speed of at least 1-300ths of a second actual time. The progressive amateur should not lose time in finding out all about this new Prosch Safety Shutter for hand cameras.

Stains Caused by Farmer's Reducer

A correspondent has been troubled with that common fault of this most excellent reducer, stains. These stains would not matter so much if they did not have a most exasperating way of showing themselves in the form of ugly blotches instead of a uniform yellowing of the entire film. They can in nearly all cases be removed by giving the plate a short immersion, say five minutes, in a ten per cent solution of sodium sulphite. The same treatment will also prove applicable when the stains make their appearance on developing paper prints that have been cleared of markings with this reducer.

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Jan. 1, 1859. jan1:tf

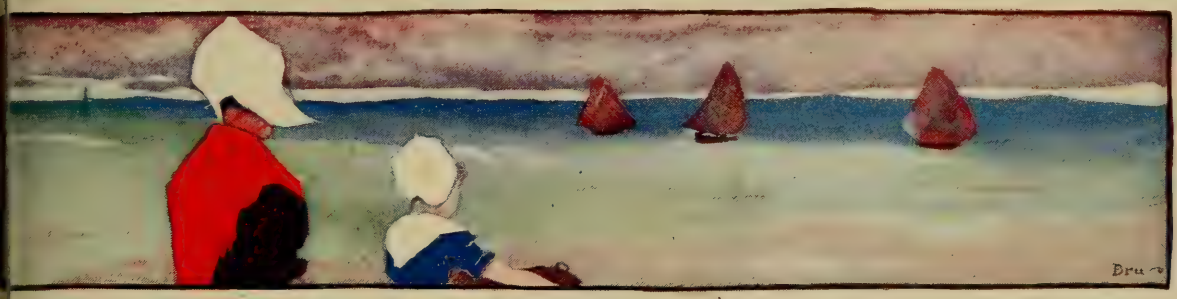
An old advertisement in the *Shasta Courier* of January 1, 1859, kindly sent to CAMERA CRAFT by H. E. Bosthby, of Los Angeles.

About Pinholes

Pinholes are like the poor, they are always with us, and as the summer advances and the air becomes thick with dust, still greater precautions must be taken against them. A strip of wood covered with plush or velvet is a better instrument than a brush for removing the dust from the plate both before and after development, for it is less likely to be used for other purposes. It should be kept in a closed box, and after continued use should be recovered, or it may deposit more stray matter than it picks up. The touching out of the pinholes is a matter requiring some circumspection; by far the greater number are better left alone, for when small they will not show on the print. The aim should be to deposit with a fine brush or pin point a minute dab of color in the center of the hole, when if the color is not too moist it will just spread to the edges and render the hole invisible either in the negative or in the print.—*Photography.*

I find a very good material for fitting up a dark room to be black beaver cloth, which may be obtained at any larger draper's for about one shilling per yard. This cloth is perfectly light tight, although rather thin in appearance.

CAMERA CRAFT



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OCTOBER

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CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

VOL. VII SAN FRANCISCO, CALIFORNIA, OCTOBER, 1903 NO. 5

Hand Cameras and Still Life Studies

By H. D'ARCY POWER, M. D.

Illustrated by the writer

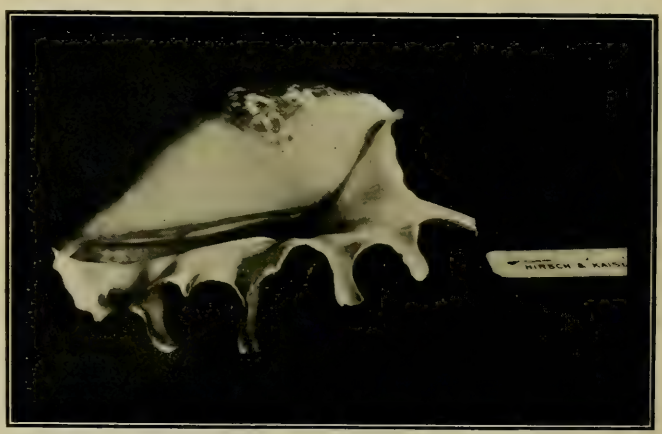
To the owner of a 5x7 or larger, long drawn camera, this article may be of little use, but to those whose apparatus is confined to the smaller hand cameras it may, I trust, open up a new field of interesting work. Hand cameras seldom exceed 4x5 in size and are either of adjustable focus, such as the Folding Pocket Kodak, or the Weno Hawkeye, or of fixed focus, like the Brownie, Bullet, and Bullseye. The lenses employed in these cameras are of short foci, usually about 5 or 5½ inches. In the very popular fixed focus forms the lens is set at such a distance as to place all objects at and beyond six feet in focus, objects closer to the camera than six feet can therefore not be taken. Many of the adjustable focus forms are no better, owing to the shortness of the bellows; thus my very excellent little Weno stereoscopic camera is limited to a six-foot range on this account, and its usefulness much diminished thereby. How diminished? Well I will show you. At six feet from the camera a five-inch lens reproduces objects at about one fourteenth their natural size, thus a portrait taken by such a camera will only give a picture of the face ½ an inch in length. A flower, such as a pink, will only cover a sixth of an inch. Figure 1, is an example. It was taken at six feet with my stereo Weno and is too insignificant to be of any use for either pictorial or scientific purposes. But that is the best the average hand camera can do. How are we to get over the difficulty? In the case of portraiture, the camera makers have already solved the trouble by supplying a so-called portraiture attachment, that is a supplementary lens, which fitting over the original lens, shortens the focus of the whole combination, thus permitting a nearer approach to the object to be photographed, and a consequently larger image. However satisfactory these attachments may be for portraiture they do not give sufficient magnification to deal with really small objects such as the flower shown above. My first difficulties in this direction occurred in the making of copies of woodcuts and halftone prints for lantern slides.

Those who have had experience in this line know well that, simple as such work may seem in theory, in practice it is troublesome to carry out. The books containing the cuts are usually heavy and their binding stiff. It is often impossible to stand them up to copy from, and the various copying stands that have been devised are large, clumsy, and not easily portable. The book from which a cut is required may be in a friend's house, or in a library, and cannot be borrowed. Again when many

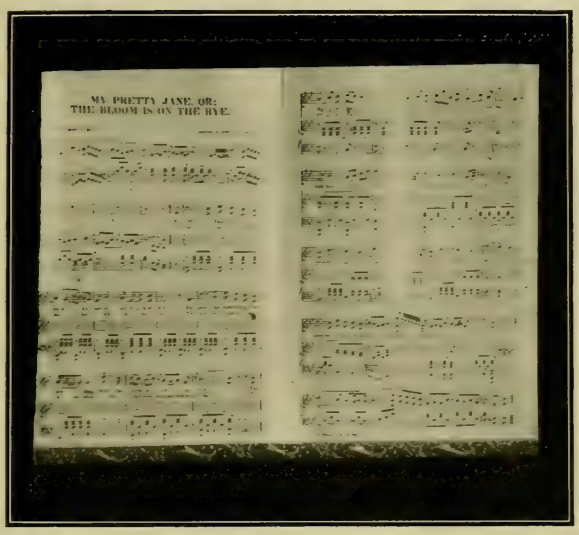
FIG. I. WITH AND WITHOUT THE SPECTACLE LENS

negatives have to be made, centering of the subject, focusing, and change of holders, take up much time, and the request recently made me by my colleague in the chair of physiology for a hundred slides from four different books meant more than a morning's work. In the production of such slides I have tried all the approved methods; used a special copying stand in which the book is pressed flat against a plate glass surface by blocks and screws from behind; have employed expensive lenses from a sixteen-inch anastigmat down; have tried all kinds of plates (with a preference for a process plate or lantern slide); and yet with all these advantages I have not succeeded in getting any better results than are obtainable by the simple procedure I am about to describe.

Most cuts in books are about the right size for making lantern slides, so that in a general way they require to be copied at the same size, or on a slightly reduced scale. Whilst reading a recent work on photographic optics I was much impressed with the great depth of focus obtainable by stopping down a short focus lens, and the idea flashed into my mind that it could be utilized by using a small fixed focus hand camera for making my negatives from books; and I proceeded at once to test it. Amongst quite a collection of cameras I possess an Eastman Bullseye kodak, a small affair carrying a 3½x3½ film, and armed with a five-inch fixed focus lens. I ascertained by means of a set of optician's test glasses what strength of supplemental spectacle lens was required to bring a cut in a book on to the ground glass full size, and found I could do it with a 5½-inch (7 diopter) lens, and that I could obtain the image half the size with a 13-inch (3) lens. The distance of object from lens was in the first case 7½ inches, in the second 12 inches. I could have worked this out by formula, but it is easier for me to test than calculate. I now knew that I could photograph an object half natural size at 12 inches distance therefrom if I put a 13-inch or 3 diopter spectacle lens in front of my kodak lens. I had further



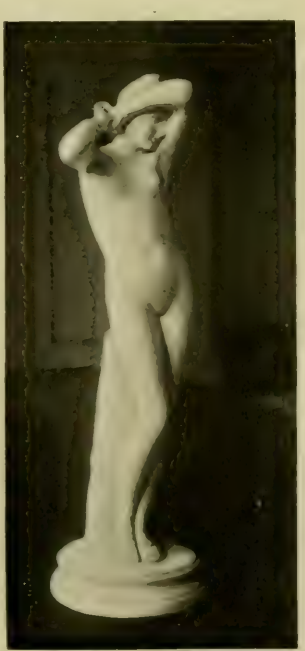
SUBAQUEOUS WORK



TO COPY MUSIC

learned from the book I had read, that if the lens were stopped down to F-45 or F-60 I should have a focal depth of about six inches; in other words, I could put my camera nine inches from the cut to be copied, or fifteen inches, and get a sharp picture in either case. This I proceeded to test. I put a book open on the table, and above it on the ring of a retort stand I placed my camera with its supplemental lens and small stop, and I proceeded to make a series of copies at distances of from eight to sixteen inches from camera, raising the ring of the retort stand one inch each time. I then developed the film and found that the extreme pictures were deficient in definition, but that from 10 to 14 inches they were quite sharp, and I have made excellent lantern slides from them. Moreover, as the size of the copy varies with the distance of lens from objects, the fact may be usefully employed where variation from the half size is desirable. So satisfactory has this method turned out that I have discarded my copying frame and anastigmat, and I have just made seventy excellent slides from negatives so produced.

Now let me shortly describe the technique. To any fixed focus hand camera carrying a 3½-inch film or thereabouts, attach a supplemental spectacle lens mounted in a cap to fit over the original lens. Care should be taken that the two lenses are parallel to one another or bad definition will result. Ascertain by trial the distance at which the combination gives a sharp focus with a large stop. In the case of a Bullseye kodak or any other camera carrying a 5-inch lens, this is a 13-inch spectacle lens—and the correct distance is 12 inches for a half reduction, or a 5½-inch lens at 4¾ inches for copying same size. For use put on the supplemental lens, stop down to smallest diaphragm,* and place camera over book at any distance between 10 and 14 inches. The book should be flat on the table and the camera can be maintained in position by a pile of books on either side, or, as I prefer, by a simple little stand I have devised therefor. Exposure is best effected by burning eight inches of magnesium



A HALF REDUCTION

* The smallest stop on a kodak is no longer small when the focus is reduced by the addition of a supplemental lens. This is easily corrected by placing a piece of cardboard in front of the lens with the necessary perforation; in the case of the full-sized reproduction, about $\frac{1}{13}$ inch.

ribbon above the book by the side of the camera. Diffused daylight in a room requires about two minutes. The advantages of this method of working lie in the extreme simplicity of the apparatus; its portability enabling copies to be made in libraries; the ease with which a book lying open is kept flat; the elimination of focusing, with its loss of time; and the rapidity with which films may be changed as compared with plates. Its disadvantages I have yet to discover.

Before leaving the subject of copying, let me point out one useful application of the same. It sometimes happens that we hear a piece of lovely music at a friend's house, the notes of which are not easily obtainable; now it is bad form to borrow music, and rank idiocy to lend it—but the camera solves the difficulty. Insert the camera over your friend's treasure and you carry home a copy, which if you cannot comfortably read, you can enlarge on Bromide paper to any size you like. I recently turned this to account in obtaining copies of some Roumanian Folksongs, which I should otherwise have missed. But there is no need to confine the utility of this inexpensive little device to copying.

There are many fields where the little hand camera thus used can render excellent service. To return to our flower, Fig. 1 shows pictures taken with a Bullseye and a 13-in+ spectacle lens which is sufficiently accurate to secure recognition from any botanist. The small picture in the corner was made without the supplemental lens. The scale of reduction is one half. The same combination has been used to secure the photograph of the shell. Nor are we confined to the photography of dead or dried specimens. During a recent visit to the seaside I employed this little camera to photograph sea anemonies and shells in their native rock pools and met with good success. This subaqueous work presents certain difficulties that I hope to deal with in a subsequent article. But, my reader may remark, I am not a botanist, and I don't care for shells, and I don't play music. So be it, there is still a field left. Still life studies can be made very beautiful, even when the objects composing them are small. It is not a field in which I have worked, so I do not offer examples, but the photograph of the vase of grasses and that of the statuette, Le Soir, both being at a reduction of one fourth are examples of the possibilities in this direction. The object of this paper is not to claim anything new in theory or in practice, but a pretty wide acquaintance with photographic workers assures me that the advantages of high-power supplemental lenses are not generally known and are certainly not utilized.

A MINIATURE
by OTTO BOYÉ

MECHANICS' PAVILION, WHERE CONVENTION WILL BE HELD

The October Convention

By M. M. Morrison

The Photographers' Association of California is to celebrate its successful organization by a convention which will not soon be forgotten in photographic circles. The convention will take place on October 29th, 30th, 31st in the Mechanics' Pavilion; and into these three days will be crowded a program of instruction and enjoyment which will lure the most stay-at-home artist from his skylight and dark room, and make him glad that he lives in an age of demonstrations and conventions, and of united effort for progress.

All of the laborious and uninteresting detail work is well under way, and we have been assured of the help and co-operation of the western state associations. The convention committee has been very active and has secured an exhibit from all the leading manufacturers, also a foreign exhibit which alone will be worth a visit. Perhaps it is rather early to make statements about the local exhibit as yet, but from the enthusiasm and interest shown all over the state it will be quite safe to say that California will not be behind hand, and that this exhibition will contain the largest and most representative collection of local pictures ever contained under one roof.

The convention will be opened at 10 A. M. on the 29th of October, and after the reception of visiting members an address of welcome will be given by the Mayor, to be followed by a response by President Webster. Then comes the inspection of exhibits, and at 2 P. M. a lecture on art. The remainder of the afternoon will be taken up with demonstrations of portrait lighting and of printing-out papers. At 8 P. M. the public exhibition and promenade concert will occur.

The next morning will open with demonstrations of bromide papers and flash-

light portrait work. At 2 P. M. there will be practical talks by prominent photographers, and at 3:30 P. M. baseball will entertain the visitors. At 8 P. M. there is a double attraction, a public exhibition at the pavilion and a theater party.

Saturday morning will be occupied with an art lecture and criticism by Prof. John M. Gamble, and demonstrations under the skylight. The whole afternoon will be given to an excursion on the bay; the evening to close with an association banquet, and public exhibition and concert at the pavilion.

What a list! Can any photographer living within reasonable distance resist it? All you have to do is to send in your membership and come right along and enjoy yourself. Do not forget to send along a few of your best pictures so that you may compare your work with that of your contemporaries.

Readers will notice that the Photographers' Association of California has made a departure from the customary procedure of state and national conventions, in that they have eliminated the business element entirely. Business such as reading of minutes and election of officers is uninteresting anyway and can as well be done at other times, so the entire three days will be given over to instruction, comparative opinion, and enjoyment. Possibly there are some photographers left yet who know so much that they cannot learn anything. They surely ought to come to this convention where they can have a good time for once and forget the weight of their wisdom. The man who stays away from conventions for fear he might have to tell what he knows probably does not know much and will in any case soon be a back number.

Now for the moralizing,—the progressiveness of the United States in forwarding the professional and artistic standing of the photographic world has for years past been watched keenly by the outside world. To say that her success is complete and unprecedented is axiomatic. But how is it accomplished? Some who look deeply into these matters would say that it is the natural outcome of the inherent optimism of the American people. This is doubtless true enough as a principle of national growth, but the greatest factor in bringing about this particular success, next to doing the work which demands the recognition of the artistic world, is the fraternal spirit existing among the photographic men. Without combined effort success is impossible and the photographic associations of the United States have helped greatly to build a world renowned reputation for artistic work, which reputation without this combined effort and fraternal spirit would at best have been confined to the few individuals.

California has been slow to organize, and for this reason her photographers have been called names which would not look well in print. But when California does anything she generally does it well, and in this case it is no idle boast, for her photographers have formed a strong, well-organized association in a marvelously short time. The world is traveling westward, and the development of the Pacific coast will continue until it ranks with the world's greatest countries. San Francisco is the natural center of the Pacific coast, and though in the past she has never neglected to do her share to advance the photographic profession, yet much more lies before her in the future. It will not be accomplished by individual effort as in the past; but it will be by combined effort in her conventions and salons, by the practical work of her association that she will do her share—yes, and take the lead if necessary in improving the standard, raising the ideals, and gaining for the photographic art the social and artistic standing which it merits.

How to Develop, with After Processes

By F. Leach

So many new subscribers have recently been added to Camera Craft's *subscription list that the publishers are led to believe that the frequent requests for a serious article on developing come from a large number of readers who would really welcome such a treatise. To gratify this seeming want we have arranged for a series of articles by Mr. F. Leach, a well known writer, and present this, the concluding article, with the statement that it is not calculated to interest our old subscribers, but is simply for the new devotees who are just starting on their journey toward success. We feel that this space is well spent and are sure that our old friends will not begrudge the effort we are making to instruct the novice. Should our old friends number among their acquaintances any beginners in Photography, we trust that they will draw their attention to this series.*

THIRD AND CONCLUDING PAPER

In order to improve weak negatives we must resort to intensification. There are several methods of intensifying negatives, the most common method being to bleach the image with bichloride of mercury and then blacken it by the application of ammonia. It cannot be denied that this method will make a great improvement in the character of a thin negative; but it is questionable if any permanent improvement will result. The process will produce a clean crisp negative, with strong highlights and clear shadows; this is probably the reason why the method finds so much favor with amateur workers. Among the disadvantages of this process may be mentioned the non-permanency of the image produced. Great care must be used in all parts of the operation, and yet it will never be known how long the negative will be in fit condition to print from. Then again, the first treatment is the last one. After we have once subjected the negative to this process we can not again intensify it should occasion require. Another drawback lies in the fact that while the highlights may become greatly intensified the shadows often become thinner than before. This renders the method practically useless for intensifying weak negatives, caused by either under-exposure or under-development. But the reader will probably see that this last objection urged against the process is not an objection at all when we wish to intensify flat negatives caused by over-exposure. It is rather a favorable point, as by increasing the contrast between the highlights and shadows, we shall obtain a better negative. Another method that is used considerably is to blacken the image with sulphite of soda instead of ammonia. The intensification produced in this way is usually very slight, and taken as a whole the method seems to offer but little advantage over the process first described. For use with thin negatives, resulting from under-exposure or under-development, we must have an intensifier that will gradually build up the shadows as well as the highlights. If the bleaching process is followed by the use of ferrous-oxalate we will secure the desired results. In proceeding to intensify the plate must first be washed very

thoroughly to insure the elimination of the hypo and then it can be bleached in the following bath:

Bichloride of mercury .....30 grains
Water ..... 4 ounces

As soon as the image becomes bleached expose the plate to the light and then blacken with the ferrous-oxalate developer. If a sufficient degree of intensification

AN AUTUMN MORNING BY W. H. WILCOX

is not obtained by the first treatment the negative can be washed and intensified again. In fact there is no limit to the number of times the negatives can be intensified. The image obtained by this process is said to be permanent. In intensifying negatives we aim to improve the quality and to produce a negative that will yield a good print. If we simply produce greater density it is doubtful whether we have

STILL LIFE — AUTUMN BY J. WILL PALMER

gained any decided advantage, as will be seen by the following illustration: Suppose we have a weak negative caused by under-exposure. The shadows are clear and lack detail. We will intensify this negative by one of the approved methods. After the operation is complete we have a negative that is still harsh and contrasty but it has greater density. Now where have we made any improvement? On account of the greater opacity it will take longer to make a print from the negative, but this cannot be called an advantage. The fact is that the operator must use good judgment. He must study the character of the negative and then subject it to the treatment that will make the greatest improvement. The weak negative resulting from under-development is very easy to improve. All that is necessary is to first bleach the image in bichloride of mercury and then blacken with ferrous-oxalate developer. But when we come to deal with the dull flat negatives, caused by over-exposure, we must proceed along different lines. As I have already pointed out, the negatives of this class are full of detail, but there is little contrast between the highlights and shadows. If we intensify one of these negatives by the method just recommended for thin negatives due to under-development, we will only secure greater density, and will not improve the printing quality. If we only desire to keep the negative for temporary use, we may improve it by the following method:

After the negative has been thoroughly washed, place it in a tray containing

Bichloride of mercury	3 drams
Bromide of potassium	2 drams
Water	6 ounces

Carry the tray containing the negative into the light and leave until the negative becomes white, then it can be thoroughly washed and placed in a tray of dilute liquid ammonia. After the blackening process is completed the negative is given a final washing and placed in the rack to dry. Upon examining a negative treated in this manner it will be noticed that the shadows have become thinner while the highlights have grown more vigorous. Because of the fact that this process does not produce a permanent image, many workers will hesitate before trying it on their

valuable negatives. The following method is more complicated than the one just on the negative. After the detail in the shadows begins to disappear the negative is first reduced in a solution that will attack the thinner parts of the image. This bath is usually used for the purpose:

Red prussiate of potash	2 drams
Hyposulphite of soda	2 drams
Water	10 ounces

This reducer works very rapidly, and the operator must keep a close watch on the negative. After the detail in the shadows begins to disappear the negative is washed thoroughly and then bleached with mercury in the usual manner. The blackening process is accomplished by immersing the plate in the ferrous-oxalate developer. This developer is prepared by taking 5 parts of a saturated solution of oxalate of potash and 1 part of a saturated solution of protosulphate of iron, 5 drops of sulphuric acid should also be added. The reader will see that by this method, we first increase the contrast of the negative by reduction and then intensify to secure sufficient density to make a good printing negative. The third class of thin negatives, those resulting from under-exposure, may be improved by a very slight degree of intensification; although, as the detail in the shadows is deficient, it is doubtful if any decided improvement will result by intensifying by any of the methods thus far given. The process known as redevelopment will produce the best results with this class of negatives. First wash the plate, then place it in a tray containing the following mixture:

Hydrochloric acid	1½ drams
Potassium bichromate	½ dram
Alum	¼ ounce
Water	6 ounces

BY THE WAYSIDE BY A. J. SWANSON

In a short time the plate will turn white; it must then be taken from the tray and thoroughly washed, when it will be ready to be redeveloped. The formula given for ferrous-oxalate developer will produce good results with this process. Great care will have to be exercised when redeveloping the plate or it is probable that little improvement will be made. The development must be carried on until the detail in the shadows and halftones is well out, and stopped just before the highlights have reached their full vigor. After development the plate is to be again washed and refixed. Under this treatment the negative will lose its harsh contrasty appearance.

AGFA

The preparation, sold under the name of "agfa," is a very desirable intensifier. It is a patented preparation, consisting of a solution of mercuric sulphocyanide and an alkaline chloride. For use, dilute "agfa" with ten parts of water, and immerse the negative to be intensified in the diluted solution. Intensification commences at once and is complete in from three to ten minutes.

LOCAL INTENSIFICATION

It will often happen that a negative will only need to be intensified in certain parts. Take a negative representing a view along the sea shore; as a general rule it will be found that while those parts of the negative representing the sea and sky are sufficiently dense, yet the foreground will be very thin. When we come to make a print from a negative of this kind, the foreground will often become very dark before the detail in the denser parts of the negative become visible. In this case it will be well to resort to local intensification. Take a small camel's hair brush, and carefully paint over those parts of the negative that print too dark. The brush should be moistened in the mercuric intensifying solution. Under the influence of this liquid the portions of the negative to which it is applied will gradually whiten. The negative must then be thoroughly washed, and then the parts can be blackened by diluted liquid ammonia. In order to avoid harsh outlines it is a good plan to take a few drops of the mercuric solution and mix with a drop or two of glycerine. The glycerine serves to keep the liquid from spreading to the adjacent parts of the negative. A skillful worker can often improve negatives wonderfully by means of local intensification. In all intensifying processes it is essential to success that the washing be performed in as thorough a manner as possible, otherwise streaks and various colored stains are liable to appear. The final washing should be continued for at least one hour in order to remove all traces of the chemicals used in the various operations, because many of those substances will cause trouble in the printing if they remain in the film of the negative.

URANIUM INTENSIFIER

Uranium nitrate is often used as an intensifier, and although several objections have been urged against it, still it possesses some advantages not to be had in methods already described. This intensifier imparts a reddish brown stain to the negative which much improves the printing quality. For intensifying very weak negatives, uranium can be highly recommended, as the reddish brown color of the deposit, being non-actinic, causes a slower printing negative. This effect will be appreciated when the operator is working with the rapid bromide or gaslight papers. To intensify with uranium, proceed as follows: First wash the negative

in as thorough a manner as possible in order to eliminate all traces of hypo, for if any of this substance remains in the film the intensifier will act unevenly and probably cause dark colored spots to appear upon the edges of the negative. After washing, the negative can be immersed in a tray containing the intensifier in this formula:

(1)

Uranium nitrate .....6 drams
Nitric acid .....2 drams
Water .....8 ounces

(2)

Ferricyanide of potassium .....4 drams
Water .....8 ounces

For use take 2 drams of No. 1, 2 drams of No. 2 and 8 ounces of distilled water. The best results will be obtained if the tray is rocked gently, throughout the operation. This will insure against the possibility of any unevenness of deposit. The negative must not be left in the solution for a great length of time, or too great a degree of intensification will be produced. A very short time in the solution will be sufficient to produce a strong printing negative. With this process, the exact degree of intensification cannot be known until the operation is completed, and accordingly the operator must learn by experience the proper length of time to leave the negative in the solution. But if the results produced by the first operation do not prove to be satisfactory, it will be very easy to correct the mistake. If, after the plate is washed, the degree of intensification does not prove to be sufficient, it will only be necessary to place the plate in the tray for a longer period; and if the intensification has gone too far it may be easily reduced or removed altogether by the following procedure: Place the negative in a tray containing 8 ounces of water and 5 drops of liquid ammonia. The density of the negative will be rapidly reduced, and when the necessary reduction has taken place, the plate must be removed from the tray and washed. In the formula for uranium intensifier, it should be noted that the solution of ferricyanide of potassium (No. 2) is of very poor keeping quality, and is also affected by the action of light; accordingly, it should be kept in a tightly stoppered bottle, and placed in the dark when not in use. Perhaps a better plan would be to mix this solution only for immediate use; for if it begins to deteriorate it will cause a great deal of trouble when used for the various operations. Ferricyanide of potassium (red prussiate of potash) is used in photography in a great variety of ways, and as amateurs are often not aware of the non-keeping qualities of this chemical, they are apt to make up large stock solutions. In a short time it begins to deteriorate and cause trouble which the worker is at a loss to account for; he may even question the correctness of the formula in which it is used. Before leaving this subject it may be well to again caution the reader about the most important point in uranium intensification, the *first* washing; for upon the thoroughness of this operation depends the success of the method. After the required degree of intensification has taken place, the negative should be removed from the solution and given a final washing. This last washing must not be continued for any longer time than is absolutely necessary for the removal of the surplus liquids. From fifteen to twenty minutes will be ample time for this. If the washing is very much prolonged it will have a tendency to diminish the amount of intensification.

THE EDITOR'S BUSY DAY BY MABEL FULTON

OVER-DEVELOPMENT—DENSE NEGATIVES

We will now proceed to the consideration of another class of negatives; those that are too dense. Dense negatives are caused by leaving the plate in the developer too long. Over-exposure, followed by over-development will cause negatives of great density, indeed the negative will sometimes become almost opaque. But it is very seldom that we see a dense negative resulting from over-exposure, because as a general rule the operator is inclined to snatch the plate from the developer as soon as over-exposure is apparent. This is the reason why we so often ascribe thin negatives to over-exposure. Correct exposure, and over-development is the most common cause of dense negatives. The dense negative is, of course, a very slow printer, making it practically worthless for use with printing-out paper; besides this it usually lacks the proper gradation between the highlights, halftones and shadows. If one had to choose between negatives that are too thin and those that are too dense, it would be best to choose the latter, as a dense negative can be very easily remedied. The way to prevent dense negatives is of course apparent to the reader, and we will not discuss the question at any length. The length of time that the plate should remain in the developer can be learned by experience or the operator can know more exactly by using the factor system, already described.

DENSE NEGATIVES—REDUCTION

The operation of lessening the intensity of negatives, is called reduction. Reduction can be accomplished by several processes, which, according to their effects, are divided into two classes. In treating the subject of intensification we pointed out that for a certain class of negatives we should choose a certain method; for a different kind of negative we would choose another method. In reducing negatives we must proceed in the same way, first examining the negative to ascertain its character and then selecting the method that will produce the best result. Under the reducers of the first class the most important one is the mixture of red prussiate of potash and hypo, known as "Howard Farmer's" reducer. As with other reducers of the first class this (Farmer's) attacks the shadows or weaker parts of the negative more readily than the highlights or denser parts. In view of this fact, it will always be well to use this method when reducing negatives that have been over-exposed. As we have already said, the negative resulting from over-exposure, lacks contrast; therefore if such negative is treated with Farmer's reducer, the character

of negative will be much improved; for it will not only be thinner but will also be more contrasty and vigorous. The negative to be reduced should first be soaked in clear water for about one-half hour in order to soften the film. It should then be placed in the tray containing the reducing solution, which can be prepared as follows:

(No. 1)

Red prussiate of potash .....2 drams
Water .....5 ounces

(No 2)

Hypo .....2 drams
Water .....5 ounces

For use mix equal parts of 1 and 2. This reducer is very rapid in its action, and the operator must keep a close watch or the reduction may proceed too far. In taking the negative from the tray, to examine the extent of reduction, it will be best to rinse it for a second or two in clear water, as this will prevent streaks. When a negative only requires a little reduction it is advisable to dilute the solution by adding water, as it will then work with less energy, and its action can be more easily controlled.

For a number of years photographers were obliged to use reducers of the first class, and needless to say, reduction was a rather unsatisfactory operation; but now there are two or three substances which will produce good results with the large class of dense negatives, resulting from over-development. We group these chemicals under the second class, because they work in an opposite manner from the reducers of the first class, i. e., instead of attacking the thinner parts of the negative they work in a more uniform way, gradually reducing the intensity of the image without causing the loss of any detail in the shadows and halftones. The reducers of this class are hydrogen dioxide, potassium permanganate, both used in an acid solution, and ammonium persulphate. On account of the extreme simplicity of the process, ammonium persulphate is more widely used than either of the other two substances. After examining a dense negative and finding it fairly contrasty and vigorous, though lacking in detail, the operator will proceed to reduce it with a solution of ammonium persulphate, in order that none of the detail may be lost. Ammonium persulphate does not keep well, after it is made up into solution, and therefore it should be used in small quantities, and mixed only for immediate use. For all ordinary purposes it will be sufficient to make the solution in the

STILL LIFE BY BELLE JOHNSON

proportion of 1 to 40 or 1 dram of persulphate to 5 ounces of water. The negative to be reduced with persulphate must be washed thoroughly to effect the elimination of the hypo and it can then be placed in the reducing solution. At first the reducer will work rather slowly, but the action will gradually grow more rapid, until the reduction is complete. The tray should be rocked throughout the process to secure an even amount of reduction. The plate must be examined frequently and when it becomes thin enough, the action of the reducer can be stopped by first rinsing the plate in clear water and then immersing it for five minutes, in a bath composed of 4 drams of sodium sulphite and 10 ounces of water; or if crystallized sodium sulphite is used, take 1 ounce of soda to 10 ounces of water. After the negative is washed and dried the process is complete.

Just why ammonium persulphate should attack the dense parts of the image in preference to the thinner portion is a mystery; and although many theories have from time to time been advanced to explain its action, yet no very satisfactory explanation has thus far been published. At the risk of a little repetition I will again say that it is of the greatest importance that the hypo be thoroughly washed from the film before the negative is placed in the reducing solution, and if the operator cannot spare the time required for a prolonged washing of the negative, he can wash it for the length of time he thinks proper, and then test for hypo. Simple methods that work satisfactorily are always to be recommended in preference to more complicated processes, and so I give the following very simple hypo test: Place the negative in a tray containing just enough clear water to cover it, and let it remain for about twenty minutes; then pour one dram of this water into a graduate, and add to it one dram of a solution composed of

Water	5 oz.
Caustic soda	5 gr.
Permanganate of potash	1 gr.

The solution prepared according to the above formula will be of a reddish color, and the color should remain the same when it is added to an equal amount of the wash water; but if the color changes from red to green it indicates that there is hyposulphite of soda present in the wash water. In this case we know that the hypo is not eliminated from the film of the negative, and the washing must be continued for a longer period.

In many of the processes connected with negative making it is carelessness or lack of attention to important details that causes so many failures, for although the method described may be absolutely correct, yet if any of the minor points be neglected good results will not be attained. When reducing negatives with persulphate, as with other reducers, streaks are frequently caused by taking the negative from the solution and holding it up for examination, before first rinsing it to remove surplus fluid. If the plate is not first rinsed in clear water the reducing solution will run over the surface of the negative in an irregular manner. When possible, it is a good plan to perform the operations of reduction and intensification in glass trays, as the progress can be noted without removing the negative from the solution.

As a rule amateurs do not have enough work to justify them in keeping a large stock of chemicals, so it is advisable to select a good reducer from each class. Farmer's reducer, for dense negatives resulting from over-exposure, and ammonium

persulphate, for dense negatives caused by over-development, will amply fill the requirements of the average amateur photographer.

Perhaps it may not be out of place to say a little about the importance of using separate trays for the different chemicals used in the various operations. As an illustration, let it be supposed that we wish to reduce four negatives; upon examining them we decide that the first two must be placed in the Farmer's reducer. After they are finished we rinse out the tray, fill it with a solution of persulphate, and proceed to reduce the next two negatives. Now it is almost certain that we will fail to get good results with the persulphate reducer; because, although we rinsed the tray in water, yet it probably retained enough hypo to contaminate the persulphate solution. In fact when one tray is used for many different purposes there is sure to be trouble. Of course if an amateur has but little time to devote to photography he will not want to go to the expense of procuring a large number of trays; accordingly the next best thing will be to keep those that he has, scrupulously clean by washing them with some compound that will eliminate all traces of the chemicals that they have previously contained. Of the compounds most frequently used probably the solution made by dissolving bicarbonate of soda in water is the best for most purposes. A very effective wash can also be prepared by taking 3 drams of hydrochloric acid and 4 ounces of water. If, after a tray has been used for a certain solution, it is thoroughly cleansed by washing with one of the above preparations, it will be safe to use the tray for a different chemical without fear of bad results. Not only does the use of unclean trays cause trouble in the operations of reduction and intensification, but it is a source of failure in many other processes connected with negative making.

When considering the subject of intensification, we mentioned a process known as redeveloping. This process can sometimes be used with advantage in reducing the density of over-developed negatives. It might be called an indirect method, as the image is first bleached and then redeveloped. In proceeding to carry out this process the operator will follow the directions already given under the head of redevelopment. The bleached negative is treated with hydrochinon or ferrous oxalate, and development is stopped before the plate becomes too opaque. The whole object of this method is to reduce the density of the negative, without losing any of the delicate detail in the shadows and halftones. But as the same results can be obtained by the use of ammonium persulphate the above method need not be resorted to except when persulphate is not at hand.

LOCAL REDUCTION

Local reduction is accomplished in much the same manner as local intensification. The best preparation to use is the mixture of red prussiate of potash and hypo (Farmer's reducer). Mix a few drops of this solution with a drop or two of glycerine and apply it to those parts of the negative that require reduction.

The solution can be best applied by means of a small camel's hair brush or a pellet of absorbent cotton. After the denser parts become sufficiently thin the negative is washed and dried. Doubtless there are many negatives that could be greatly improved by local reduction, especially those negatives representing snow scenes and water views. As we have already said, dark objects require a much longer exposure than those of lighter color, consequently when we take a photograph of a dark-colored building, situated in a field covered with ice and snow, we find

it impossible to obtain a satisfactory print from the negative. If we give the exposure required for the building then the surroundings will be over-exposed, and if we expose for the surroundings the building will not receive enough exposure to bring out the detail. When the plate is developed the strongly lighted parts of the subject make their appearance and rapidly become too dense before the detail in the shadows begin to appear. In order to obtain a good print from a negative of this kind we usually resort to local reduction, carefully applying the solution to the denser parts of the negative. By this procedure we will cause the negative to print more uniformly, and if there were any footprints or wheeltracks in the snow they will be represented in the print, whereas before the negative was "doctored" the surroundings of the building were represented by an expanse of white paper. Local reduction can be effected in a very simple manner by the use of alcohol. After the negative is washed and dried those portions which are too opaque can be rubbed with a tuft of cotton or a soft cloth moistened with alcohol. The operator should be careful to use a firm, even pressure, and thus avoid causing streaks and irregular markings.

DRYING NEGATIVES

The drying of a negative may appear to be a very simple operation, nevertheless many of the defects in negatives can be referred to the improper method by which the drying was performed. When the operator is in no hurry for the negative he will proceed to dry it in the following way: Take it from the wash water and carefully wipe the surface with a wad of absorbent cotton to remove any particle of rust or sediment that may have accumulated on the film during the washing process. If this sediment is allowed to remain on the negative it will dry into the film and its removal will be difficult if not impossible. Next place the negative on the shelf or in a rack until dry. The temperature of the room should be moderate, about 60 degrees Fahrenheit in hot weather, and this temperature should be maintained until the negative is dry. If the negative is dried in too warm an atmosphere it will have a tendency to increase in density, while if the room is too cold the progress of drying will be greatly prolonged. Uneven density is caused by starting to dry a negative in a room heated to a certain degree and then after a portion of the negative has become dry, taking it into a room of higher or lower temperature to complete the drying process. Of course that part of the negative dried in the warm room will have greater intensity than the part dried in the room of lower temperature. When a negative is placed in the rack it usually begins to dry at the top and side edges, and when it is taken up for examination it should be returned to the rack so that the drying will continue in the same way from top to bottom. If the air circulates freely throughout the room it will cause the negative to dry evenly and quickly. A small water fan will cause a sufficient current of air for the purpose.

RAPID DRYING OF NEGATIVES

Negatives can be dried very rapidly by several methods. After washing the plate immerse it for about ten minutes in a tray containing enough alcohol to cover it, then place it in the rack and it will dry very rapidly. When drying negatives by means of alcohol, it is essential that the hypo be first washed thoroughly from the film, otherwise a white deposit will appear upon the negative.

Negatives treated with formaline will dry very quickly. Formaline or formaldehyde is a gas which dissolves readily in water. It can be obtained in a 40 per cent

solution, which is to be diluted by the addition of 15 parts of water (15 ounces water and 1 ounce formaline). After the plate is developed, rinse and then place in a bath, made in the proportion mentioned above. Leave in this bath for three minutes, then transfer the plate to a plain hypo bath until fixed. The formaline will harden the film to such an extent that the negative can be dried by holding it quite near the stove, without causing the emulsion to melt. However, this practice can not be recommended except for occasions when the operator is in a hurry for the negative. Another way of causing the negative to dry quickly is to remove the surplus water from the film before placing the negative in the drying rack; this can be accomplished by wiping the surface with a wad of absorbent cotton. The operation should be performed by stroking the plate from top to bottom, and then from side to side. Bear on as lightly as possible in order to avoid marking or otherwise injuring the film.

A Talk on Lenses

Delivered Before the Twenty-third Annual Convention of the Photographers' Association of America

By L. F. Deardorff

It is not my purpose to come here to teach you anything. I only want to remind you of a few things which you yourselves already know, but which you sometimes forget. The subject of lenses has been a very perplexing thing to a majority of photographers, and I think you will all admit that next to the operator the lens is the most important factor of your outfit, and at the same time that it is perhaps the least understood by the photographer.

It was my purpose to call your attention to some points in relation to light in general which are perhaps not absolutely necessary for you to know, but which it would be an advantage to you to know. Time, however, will not permit, and I will devote my attention to some of the more particular points about the lens. Of course we must know this much, that there are a great many kinds of different light, and that the quality of the light makes a vast difference as to the result of the work, and all that sort of thing. So you ought to remember that to use your lens properly you must look to the quality of your light.

The object of a lens is largely to increase the capacity for shortening the time of exposure. An ordinary pin-hole will make an image just the same as a lens will, and the real purpose of the lens primarily is to increase the size of that pin-hole. That is plain and simple.

Two elements enter into consideration—light and shade. If you know how to handle your lens, and you have one which is properly constructed, of course you will get a gradation of tone from extreme high light to the deepest shadows. That is what makes your picture. The adjustment of the lens determines how you will get these effects.

If you have a lens properly adjusted, and you know how to manipulate it, it is an easy matter to get a fine negative. If you do not know how to manipulate your lens, you cannot get a fine negative; and I defy you to print from a poor negative. A great many photographers ask, "What kind of a lens shall I get?" I am asked every day this question, "What is the best kind of a lens to have?" Well, that is not an easy question to answer unless one first knows what you are going to do. If you are going to do portrait work, you want a lens especially constructed for that work, and you will find many lenses on the market called portrait lenses that are not, properly speaking, such.

It is highly important that you select a portrait lens with care. Of course, one man may produce a good portrait with a $25 lens, as good a portrait as his brother photographer may produce with a lens costing him $225. While that is possibly true, yet the question remains, would not the man with the $25 lens have produced still better pictures with the higher priced lens? I do not mean to say that by merely spending that much money for a lens you are going to add to your artistic ability, but the manufacturers of lenses have put enough quality into their work to counteract many of the shortcomings of the photographer. The quality of the light, the nature of the subject, the time of exposure, and all that kind of thing, must enter into your consideration, but if you are compelled to compensate for the defects of a lens you will find it up-hill business to undertake. Many photographers, I am sorry to say, are laboring along that line today, as my experience has told me.

I want to call attention to the matter of stops. I am often asked, "What kind of a stop is the best to use?" I only give one rule for the use of stops, and that is, to use the largest stop that you can to obtain the necessary definition. Never use a small stop if you can help it. The smaller the diaphragm, the flatter will be your image; the larger the diaphragm, the more rounded you will get the image. The beauty of photographic work is in the stereoscopic effect.

Another point is, depth of focus. The optician will tell you there is no such thing as depth of focus in a lens, and that is true, optically speaking, but take three lenses of any make, I do not care whose. I will defy anybody to produce three lenses, but what any one of you will select one out of the lot which you like better because it has a little greater depth of focus than the other. That is due to an optical defect in the lens. A perfectly optically constructed lens has no depth of focus, that is true, but a lens should not be correct absolutely mathematically, because you don't want it that way. No one wants it that way, and so the correct arrangement and adjustment of the different lenses with reference to their refractive or dispersive power, chromatic spherical aberration, relative curvature, are the determining factors as to the particular points of focus. If you could construct a lens so that there is no absolute sharp point about it, and yet sharp enough to please the eye, there is not that difference of comparison between the absolutely sharp point and that which is not absolutely sharp, and we overlook these defects. The public overlook them. Now, if you can get a lens of that kind, that is what you want. I find it so every time.

Another point is the flatness of field of your lens. It is not desirable to have an absolutely flat field except for certain purposes. If I were going to make a copy of any picture, I should want an absolutely flat field lens that would get it sharp; but if I were going to make a group or a portrait, I would not want it for the simple

reason that when you have a group in front of you and look at this side and then at that side—the head is round like a ball—when you are viewing a head straight in front of you, you see around a circle. Suppose the head is exactly a perfect sphere, and suppose you have another perfect sphere. I look at these round spheres and I get a cross in the center, and everything is a perfect circle in front of me. Now, light passes to the plate. The plate is perfectly flat. As the light strikes the plate, the image is drawn out, one edge striking first, and so on out to the other edge. Instead of having a round image, you have an oblong elliptical head. I have seen pictures that nobody would want.

There are two points for you to consider. The first is, will you have a lens that cuts absolutely sharp off the corners of your plate and gives you this distortion, or will you have a lens that does not cut quite so sharp at the corners of your plates? I suggest a compromise. You do not want to have it fuzzy. The lens' angles most always remain the same, but there are exceptions, there are distortions. We want something that is presentable, at any rate; and so for that reason I could not recommend a lens with an absolutely flat field even for group work. Any circle will give you sharp images at the ends, which will be a little bit larger on your plate; but which will you have, a little larger on the edges of your plate, or all the same size? It remains for you to decide. You want definition in your shadows. There are many lenses on the market that you can buy at from $40 to $50 that will produce a fine image, but do you get the gradation from the highest lights to the deepest shadows? Sometimes you will strike it but you will not always do it. You should see to it that you have a lens that will do it with almost any kind of a light. The polish on a lens determines to a great extent the detail. A lens that is finely polished will give you a nice gradation of tone, other things, of course, being correct, such as curvature, etc., from your highest lights to your deepest shadows. A lens that is not perfectly polished will give you diffusion. You cannot develop it. You will not be able to get that beautiful detail in your shadows that you want.

Now, as to brilliancy of image; some lenses will give you a very correct drawing, perfectly sharp, yet the image seems dead. And why? I wish I had the time to explain this, because I see such a great tendency among photographers to buy some thing that is cheap. A good lens cannot be made cheaply. It is an expensive process, for there must be correctness for spherical and chromatic aberrations. It is impossible to make a lens that shall be perfect in these respects—absolutely impossible. Ground and spherical curvature cannot be wholly eliminated; yet these are corrected to such a great degree that no human eye can detect it in the ordinary photographic way.

The rapidity of a lens determines too, what you are going to get. You want a lens with a wide opening that will give you as much depth as possible and good defining power. Baby pictures count for quite a great deal, and we have some pretty large babies that complain when you time too long. In reference to the adaptability of the lens to the class of work, is your lens suitable in this respect? Have you a lens that will do your work? Are you making groups with a portrait lens? Are you straining a point and compelling your customers to take a picture that you yourself are not satisfied with simply because you don't want to buy another lens?

It pays to get a good article, and if a proper instrument pays for itself, why not have it? You should have a portrait lens for portraits and a group lens for

groups. It has been my province to supply lenses especially fitted to different classes of work. That is why I speak of this. It matters not whether you ever speak to me about a lens, or not, I am going to tell you this just the same, that whoever your dealer is, look to it that you get the right kind of a lens, suited to your work. If you do not understand it, consult somebody who does, and get the lens that will suit you. If you have a dozen lenses, you will not have any too many. See that you have enough, so that you will have sufficient for each kind of work. If you went to a clothing house to get a suit of clothes, you would not select a suit intended for a very corpulent man if you were a lean man. You would not like to wear it, nor would the corpulent man feel comfortable in my clothing.

I want to speak about another point which is important. Some photographers have a certain height for their lens and keep it there all the time. They do not figure that you must have certain effects here, and quite different effects there. If you have a short lady, who would like to appear tall, where would you put your lens? Have you ever thought about that? If you want a short lady to appear shorter still, get your lens up and look down. You should place your lens properly. In doing so, you have to take into consideration the focus of the lens. Do not be afraid to use a swing back. Try it till you find out where is the best place to use it. If you do not know, ask some one else, and they will probably tell you. Do not be afraid to use a lateral swing either. If you are photographing a bust or large head, this shoulder may be in focus and the other out of focus. Why? You did not use your swing back enough. If necessary, you can place the sitter in an inclined position and still retain the focus pretty well with both the front and the back shoulder, and make a much more pleasing image. This is a matter that probably is controlled by the lens.

With reference to the distance at which you work from your subject, if you do not have the proper distance, you need not look for the proper result, no matter what kind of a lens you have, if you are too close to your subject; the nose may be too large and the ears too far back on the head. The part which is towards the lens is too prominent. You must remember that you are limited. You may have a short operating room, and if so, there is only one thing for you to do, and that is get a lens that will fit your operating room, and grin and bear it. The proper distance for a cabinet standing figure is somewhere in the neighborhood of twenty to twenty-five feet. That is recognized as the best distance; for a cabinet head or bust picture, from ten to fifteen feet is considered the best. I give you these figures not from my own experience, but from that of successful photographers with whom I have talked in regard to the matter; the care of your lens is an important point. Photographers have come to me who had made a little scratch on their lens—a scratch so fine that you would be surprised—and because it was a very fine lens, they were all broken up over it. They thought it was seriously injured and wanted to know if I could not polish it off. I told them, "Yes, I can polish it off." Then they asked, "Will it injure the lens?" Sometimes, I am sorry to say, it will; sometimes it will not. If I think that they want it done real badly, unless it would injure the lens, I decline to undertake it. I generally tell them not to do it, as a little scratch on a lens does not injure it to any great extent. If you do not clean off the surface of the lens so that it can see, how can you expect it to serve you? It will not work. Clean it every day.

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Unifying Values

One of the most important educational moves taken by the Photographic Association was the determination to carefully consider the proposition to unify the different photographic values advanced by F. M. Steadman of Puebla, Mexico, and outlined in CAMERA CRAFT by him some months ago. In addressing the convention Mr. Steadman said:

"For the last six years I have been endeavoring to unify the different photographic values in such a way that we may express them by simple numerals as we express other known and applied forces of nature. For instance, gravitation is a natural force, and we have established units for its measurement in the grain and gram. For distances we have a system of linear measurement. We have also measures of surface area and measures of volume. We have also established a unit of measurement of temperature.

"Now the pre-eminent force to which we give attention, and which we daily employ in photographic manipulation, is the actinic force of light; and I believe that there is nothing that will dignify photography so much as a successful effort on our part to provide a unit of measurement for this force. This body may well go down in history with sufficient reason for its existence if it shall successfully attack and solve this problem. I believe that nothing else will redound as much to our credit as an association.

"There is an impression prevailing in some quarters that the establishment of such a unit of measurement of actinic force would in some way restrict the freedom of artistic photographic production, but surely just the contrary is the case.

"In presenting my views on this subject I met with opposition from one gentleman, who said: 'If a physician writes a prescription and gives it to his patient, who takes it to a druggist to be filled, it is not necessary that the druggist should understand the diagnosis of the disease for which the physician wrote the prescription.' I replied, 'That is true, but you must admit that the druggist must have units of volume and of weight in order to properly compound and measure the several parts of the prescription.'

"I contend, therefore, that if we provide a unit of measurement of actinic force, we will advance our art to the dignity of mathematical accuracy, and we will be prepared to describe in exact terms the actinic intensity of any surface in nature."

A committee was duly appointed to review the matter but the short time allowed for the consideration of the problem prevented full action. The committee recommended that the president appoint a special committee to correspond with Mr. Steadman during the coming year and report at the next convention. The move will undoubtedly be taken.

The New Officers

CAMERA CRAFT congratulates the Photographers' Association of America upon its new staff of officers. Every man on the list, which follows, has been well tried in national photographic circles, and the convention next year at St. Louis will be one of the strongest in years. Here is the list:

President—C. R. Reeves, Anderson, Ind.
First Vice-president—Charles W. Hearn, Boston, Mass.
Second Vice-president—C. J. Van Devanter, Decatur, Ill.
Secretary—George C. Holloway, Terre Haute, Ind.

A Big Number Coming

Two important photographic exhibitions will have occurred before CAMERA CRAFT again reaches its readers. Preparations are being made to fully illustrate and describe both the Third Photographic Salon and the First Convention of the Photographers' Association of California, and orders should be placed early for extra copies.

The Salon Catalog

The executive committee of the Third San Francisco Photographic Salon have in preparation a souvenir catalog of the exhibition that promises to be by far the most ornate yet produced. It will be modeled somewhat after the style of "Camera Work," Alfred Steiglitz's sumptuous publication, but of course will not be so elaborate. It will be handsomely illustrated and an effort will be made to carry out in tone and quality the beauty of the original print. Of necessity the edition will not be large but out-of-town readers can procure copies during the progress of the salon by sending 35 cents to the executive committee of the salon at the Academy of Sciences Building, San Francisco.

Take a Holiday

One of the days of the Convention of the Photographers' Association of California should be declared a holiday by the manufacturers, stock dealers, and photographers of San Francisco, Oakland, Alameda and Berkeley, so that all the employees of the various concerns may have an opportunity to inspect the exhibits. The educational value of this first Convention cannot be over-estimated, and employers who do not appreciate this fact by allowing all of their employees the fullest liberty during the Convention, condemn themselves as ardent disciples of silurianism.

*Some New Photographic Chemicals

By Dr. H. Schweitzer

Photochemistry has only recently been taken up by the German synthetic chemist, but the results already accomplished are most remarkable. Hitherto the aim has chiefly been the discovery of new developing substances, but lately other steps of the process for the production of photographic pictures have been scientifically investigated, which researches have resulted in the introduction of new chemicals that have greatly simplified the art and have attracted to it an ever-increasing number of devotees.

Speaking first of developers, it was not until 1882 that hydroquinone appeared as a competitor for the old reliable pyrogallic acid, $C_6H_3\begin{cases}OH\ (1)\\OH\ (2)\\OH\ (3)\end{cases}$ which was first recommended as a developer by Archer in 1851. Hydroquinone $C_6H_4\begin{cases}OH\ (1)\\OH\ (4)\end{cases}$ was found to possess excellent developing properties, and since a developer ready for use that would keep for weeks could be prepared with hydroquinone, it soon became very popular. As a matter of fact, the simple process of developing with hydroquinone, by virtue of its durability and cleanliness, created the great army of amateur photographers, development with pyro being so complicated and difficult that only professionals and people with a scientific bend of mind cared to go to the trouble of developing pictures, it being then more of a labor than a pleasant pastime.

The introduction of hydroquinone also paved the way for the synthesis of new developing substances. Whereas up to 1882 only iron oxalate and pyro were used as developers, the developing properties of hydroquinone and its chemical relationship to pyrogallic acid showed that there must be certain relations between chemical constitution and photo-chemical qualities.

Andresen was the first one to make use of such theoretical deliberations, and after having found that not only di-oxy derivatives of benzol and its homologous and analogous bodies, but also amido-oxy compounds possess developing properties, he proposed in 1889 the use of eikonogen as a developer. Eikonogen, the trade name for the acid sodium salt of amido-betanaphtholmonosulpho acid on account of its fine properties and convenience of use soon became a great favorite of the already very large class of amateurs.

In 1890 there followed in quick succession the introduction of rodinal, a concentrated solution of para-amidophenol sodium, metol, the sulphuric acid salt of monomethylparaamidometakresol.

$$C_6H_3\begin{cases}NHCH_3\ (1)\\CH_3\ \ (2)\\OH\ \ (4)\end{cases}\quad\frac{(H_2SO_4)}{2}$$

Amidol, orthoparadiamidophenol,

$$C_6H_3\begin{cases}OH\ (1)\\NH_2\ (2)\quad HCl.\\NH_2\ (4)\quad HCl.\end{cases}$$

Glycin

$$C_6H_4\begin{cases}OH\ \ (1)\\NH.\ CH_2.\ COOH\ (4)\end{cases}$$

To be followed by adurol, a halogen derivative of hydroquinone, and by ortol, a combination of methylorthoamidophenol and hydroquinone; and diogen, the sodium salt of amidonaphtholdisulpho acid.

$$C_{10}H_4\begin{cases}NH_2\ \ (1)\\OH\ \ (2)\\SO_3Na\ (3)\\SO_3Na\ (4)\end{cases}$$

In 1899 Eichengrün found a new method for the preparation of oxyalcohols of the aromatic series.

He allowed formaldehyde to react on salicylic aldehyde in the presence of concentrated muriatic acid, but instead of obtaining the expected methylenedisalicylic aldehyde, $CH_2\begin{cases}C_6H_3\begin{cases}OH\\COH\end{cases}\\C_6H_3\begin{cases}COH\\OH\end{cases}\end{cases}$ he obtained under intermediate formation of chlormethylic alcohol (Cl. CH_2 OH) a body of the constitution,

$$C_6H_3\begin{cases}OH\\COH\\CH_2Cl.\end{cases}$$

By heating this substance with water, chlorine is substituted by O H, and the body

$$C_6H_3\begin{cases}OH\\COH\\CH_2OH\end{cases}$$ is formed.

In extending this reaction Eichengrün found that other oxy derivatives containing strong acid radicles in the nucleus such as carbonic acid and their esters, nitro and halogen derivatives of phenols could be substituted for the aldehyde of the first example, sulpho acids, however, could not be used in

*Read before the New York section of the American Chemical Society.

the reaction. Salicylic acid, for example, gave a product of the following constitution:

$$C_6H_3\begin{cases}OH\\COOH\\CH_2.\ Cl.\end{cases}$$

And by treatment with water, $C_6H_3\begin{cases}OH\\COOH\\CH_2OH\end{cases}$ para-oxy-methyl salicylic acid.

If the intermediary product is treated with phenols in the presence of a condensing agent, chlorine is substituted by the phenol radicle and by the use of betanaphthol, the body, $C_6H_3\begin{cases}OH\\COOH\\CH_2.C_{10}H_6.OH\end{cases}$ is obtained, which is used in medicine under the name of epicarin, as a non-poisonous dermal antiseptic.

If instead of salicylic acid paranitrophenol is applied in the Eichengrün reaction, then $C_6H_3\begin{cases}OH\\CH_2\ Cl.\\NO_2\end{cases}$ $C_6H_3\begin{cases}OH\\CH_2\ OH\\NO_2\end{cases}$ is formed.

If this alcohol is reduced, then the amido compound, $C_6H_3\begin{cases}OH\\CH_2\ OH\\NH_2\end{cases}$ is obtained.

The hydrochloric acid salt of this meta-amidoorthooxybenzyl alcohol is the new developer called edinol.

Eder divided the developing substances into two classes, the slow developers of the pyro type, to which belong pyro, hydroquinone and pyrocatechine; and the rapid developers of the eikonogen type, rodinal, amidol and metol.

In considering the chemical constitution of these two classes we find that the pyro class contains only the acid hydroxyl groups, whereas the rapid developers contain amido and hydroxyl groups. The character of the pyro developer is therefore, so to say, acid, and that of the rapid developers more basic.

If we look at the composition of edinol we find that it is chemically between the two classes. It contains 1 O H group, and 1 NH_2 in the nucleus, and in addition to it an O H in the lateral C H O H group.

It is of a less acid character than the developers of the pyro class and of a less basic character than those of the rodinal class.

It is further distinguished from all the known developers by having the hydroxyl group in the lateral CH_2 O H group. This chemical composition determines the developing properties of edinol. It stands between the two classes of known developers possessing at the same time properties peculiar to itself. Its main properties are, that on account of its great solubility it allows the preparation of concentrated stock solutions. Even with prolonged development it produces negatives entirely free from fog or stain. It does not stain the hands or finger nails, and is not poisonous. It is the best all-around developer, as it is equally good for over and under exposures, plates, films, bromide and gaslight papers. Although very rapid, bringing out the latent picture as quickly as any of the rapid developers, it is under absolute control so that faults of exposure can be easily remedied.

ACETONESULPHITE

In conjunction with developing substances alkali salts of sulfurous acid, such as sodium sulphite, potassium metabisulphite, etc., are used, in order to protect the easily oxydizable developers against the influence of the oxygen of the air. On account of this action they are called preservatives. The requirements of the photographer have brought about the production of such salts which otherwise would perhaps never have become commercial articles.

Until after 1890 when Schering produced sodium bisulphite in solid form, real sodium bisulphite was unknown, since the liquid sold as bisulphite of soda, etc., was a very impure product which, according to Bothamley, contained only meta bisulphites. This he explained by the fact that the bisulphites in the presence of water cannot exist, but are converted into the meta bisulphites.

Neither Berthelot in 1883 nor Bothamley in 1890, in spite of numerous attempts, succeeded in preparing the pure bisulphite. The normal sodium sulphite with 1 molecule H_2O was always a commercial article, but the desiccated product was not introduced until after Vogel recommended its use in 1889 for photographic purposes. Again in 1891 potassium metabisulphite in the form of well-formed crystals was first brought into the market by an English firm.

These salts were exclusively used as preservatives until a new product was discovered. It is called acetonesulphite, and as the name indicates, is the condensation product of acetone and alkali bisulphite.

Acetone was recommended by Lumiere & Seyewitz in 1898 as a substitute for alkali in developers. Lumiere & Seyewitz further discovered that acetone, when used in connection with a developing agent, not only replaced the alkali, but also possesses valuable properties of its own.

It was found to prevent the formation of fog and stains and to exert a remarkable influence on the color of the silver deposits of negatives as well as of bromide of silver prints, and in consequence thereof developers containing acetone were soon in great favor with photographers.

When acetonesulphite was tested in photography by Eichengrün, he thought that it might replace the sulphites as a preservative, and also acetone as a substitute for alkali in developing solutions. In this connection it may be well to add that alkalis act as accelerators in developing solutions. By their use it is assumed that the phenols employed as developers are converted into the sodium or potassium salts of the free phenol, and that the amount of alkali necessary for this conversion would give the best results.

Eichengrün ascertained by his investigation that acetonesulphite possesses the developing properties of acetone and the preserving properties of the sulphites, without, however, acting as an alkali. But he found that it has still properties of its own mainly due to the fact that acetonesulphite acts as a weak acid, whereas sodium sulphite acts as a weak alkali. This peculiar property of even the purest sodium sulphite is due to the presence of sodium dithionate of the composition $Na_2 S_2 O_6$, to which is ascribed a decided alkaline reaction, whereas the acid reaction of acetonesulphite is due to the fact that the latter product is the acid sodium salt of a sulfo acid.

The acid reaction of acetonesulphite is proved by the fact that, if it is used as a preservative in connection with amidol, alkali must be added, whereas without acetonesulphite, sodium sulphite furnishes enough alkali for development.

Again, acetonesulphite can be used in such developing solutions where sodium sulphite on account of its alkali reaction could not be employed, for example in the iron oxalate developer, which it keeps extraordinarily clear. Furthermore, in fixing baths the addition of acetonesulphite to the hypo acts as if acid salts or acids were added to the hpyo solution.

By his experiments Eichengrün succeeded in disproving the theory of Lumiere & Seyewitz for the action of acetone. He showed that in an acetone developer of the above kind the presence of hydroquinone sodium could not be established, but only of free hydroquinone, and acetonebisulphite could not be traced, but only unchanged sodium sulphite. If the above formula were correct, then the solution ought to contain acetone bisulphite and hydroquinone sodium. On shaking such a solution with ether, he could remove the whole amount of hydroquinone and acetone in the cold, while on evaporating the watery solution, a residue remained which contained not a trace of acetone, and therefore could not be acetonebisulphite.

If hydroquinone sodium and acetone bisulphite had been formed, then the ether could not contain any hydroquinone nor acetone. Again, in evaporating a second sample of the solution it was proved that the residue contained free hydroquinone soluble in ether, but not hydroquinone sodium, and on adding alkalis no acetone was generated, the latter having been already driven off during the heating, and it was therefore not present as acetone bisulphite.

Also by photographic means he proved the incorrectness of the above theory in so far as a developer in which the formation of hydroquinone sodium was completely excluded, namely one made by hydroquinone, acetone bisulphite and acetone developed even in the absence of sodium sulphite. Therefore acetone in itself must possess such basic properties which enable it to act as an alkali proper, a quality which, although surprising, yet is perhaps not quite inexplicable after the epoch-making investigation of Adolph von Bayer concerning the basicity of oxygen. This experiment seems also to disprove the theory that the addition of alkali is made for the purpose of converting the phenols employed as developers such as pyro, hydroquinone, etc., into the corresponding alkali salts and that only these act as developers whereas free phenols would not develop.

Eichengrün's experiments proved that acetone bisulphite could replace sodium sulphite in developing solutions. Further experiments showed that this body did not only replace sulphite, but also acid sulphites, such as potassium metabisulphite and sodium bisulphite, and possessed considerable advantages over these chemicals. The well-known drawbacks of these chemicals are: Sodium sulphite must be employed mostly in eight times the quantity of the employed developer, therefore its use for the preparation of concentrated stock solutions is excluded. Potassium metabisulphite cannot be used for all developer solutions—it cannot be used with

acetone at all. On account of its strongly acid reaction it can be used with alkali carbonates only by employing a very great excess of the alkalis. Solutions of these two sulphites keep only for a short time, splitting off sulphurous acid and depositing crystals, thereby of course losing effect. On contact with air they are very quickly transformed into sulphates.

Acetone bisulphite, on the contrary, furnishes easily highly concentrated 50 per cent solutions which keep indefinitely, and therefore can be used for the preparation of highly concentrated stock solutions of developers, also for the preparation of developer solution ready for use by simply measuring the solution instead of weighing, which is especially troublesome in the darkroom. Acetonesulphite replaces the above sulphites in every formula, since it can be used with caustic alkali as well as with alkali carbonates. It can also be used with acetone. Acetonesulphite is generally employed in quanties one and one half to two times that of the developer, which is about the fifth part of the ordinary quantity of sodium sulphite, and developers made with it possess the character of the Lumiere acetone developers, which are distinguished from other developers by the brownish color of the silver deposit, which makes them especially fit for lantern slides and transparencies.

A higher percentage of acetonesulphite,with which of course the percentage of alkalis must be increased, has a very peculiar influence on the color of the silver deposit, and in such a manner shades of deep black to velvet brown can be produced not only on plates but also on developing papers, even with such developers which, like pyro and hydroquinone, could not be used for bromide paper on account of their tendency to yield yellow prints.

The following developing solution: Edinol 1, acetonesulphite 1, sodium sulphite 8, acetone 10-20, water 100; and edinol 1, acetonesulphite 5, sodium carbonate 15, water 100, are, according to Professor Precht, the best formulæ for the development of bromide papers.

Acetonesulphite is also an excellent preservative for fixing baths, in which an addition of one half of one per cent makes a further addition of sulphuric acid, citric acid and alum unnecessary. Acetonesulphite imparts to the fixing bath the desired faintly acid reaction and weakly tanning properties, and keeps them extraordinarily clear and colorless. On the other hand, contrary to the above acids, it does not harden the gelatine, and therefore makes a quick washing possible after fixing.

Acetonesulphite may also be used in the method discovered by Namias for the reduction of over-printed pictures on celloidin paper, bromide paper or chlorbromide paper. For this purpose the prints are immersed in a dilute solution of permanganate of potassium which is acidulated by sulphuric acid. The prints are left in that solution until the desired reduction is brought about, and then they are treated with a solution of Acetonesulphite. This is the only easily executed method known for saving over-exposed prints which does not stain the highlights of the picture.

It can be used for blackening after intensifying with mercury instead of ammonia which is generally used for this purpose. It recommends itself especially for this purpose on account of the concentration in which it may be used and on account of its being odorless.

In the development with oxalate of iron Acetonesulphite is used as a preliminary bath. It replaces here advantageously hyposulphite, which frequently produces fog. It is especially valuable because it may be used in very small quantities, and it accelerates development extraordinarily. It also increases the intensity and produces strong and clear pictures.

But the most astonishing use of Acetonesulphite is as a restrainer for rapid developers. Here it produces results which are surprising in the highest degree and which open up new photographic fields, namely, the development of extremely over-exposed plates, the prevention of solarization, thereby permitting photography against the sun, and photography of pictures with the sun as an object.

This correction of over-exposure does not mean prolonged development. Acetonesulphite is therefore not a restrainer in the sense in which this word is used in contradistinction to accelerator. The chemical action of Acetonesulphite in saving over-exposure is unique and has not been observed with any of the chemicals used in photography, and to describe its action a new word must be coined. The effect, however, is easily observed: The deep, black opaque deposits on over-exposed negatives are changed to a soft transparent

brown, and the printing qualities become normal.

Whereas hitherto it was hardly possible to save over-exposed negatives yet by employing Acetonesulphite, we get good negatives with an over-exposure of 100 to 20,000 times normal. To develop such over-exposed pictures we proceed as follows: An ordinary developing solution containing about one half of one per cent developer is used without the addition of potassium bromide, but with an addition of 1 per cent of Acetonesulphite. For example, 1 dram of edinol developer is diluted with 4 ozs. of water and 1 gram Acetonesulphite or ½ dram C C concentrated Acetonesulphite solution is added. The picture appears only after some minutes, and development becomes so slow that the plate may be developed like a normal plate. The plate can be removed from the bath before any fog sets in and the clear negative may, if necessary, be intensified.

This new method of developing with Acetonesulphite makes it possible to photograph such subjects which, on account of too great contrasts, could not be exposed long enough to get the details of the shadows; for example, subjects which are exposed to too much light in the studio, reproduction of pictures, portraits in strong light, dark interiors with windows, engines and apparatus with bright reflexes, landscapes with too much light, landscapes in sunlight, glaciers and marine pictures. A great many experiments have shown that negatives of almost the same quality are obtained under normal exposure of one second and under enormous over-exposure, for example, of 6,000 seconds. The new method also permits all kinds of exposures which would until now have suf-velopment which would until now have suffered from solarization, it even admits photographs of the sun, and such with the sun in the picture, which was considered impossible up to now. The experience of the present day is that, if the sun shines directly into the lens the negative shows impenetrable fog, but with Acetonesulphite it is now possible to get a perfectly clear negative without fog. The negative can be removed from the bath before the phenomenon of solarization becomes apparent. By these experiments solarization has been proved by Eichengrün not to be as was assumed up to now, the function of development. In this way landscapes were photographed in which the sun as well as the clouds highly illuminated by the sun appeared in the picture. The latter appear always with the sun at a height of 10 degrees, whereas at a greater height the disk of the sun shows solarization, but only the disk, whereas all details, down to the deep shadows, are brought out even when the sun was high in the sky and was furthermore reflected in the water.

From the above it appears that Acetonesulphite is a new photochemical which is unequaled in versatility. It can be employed for developing, for fixing, for intensification, for reduction, as a preliminary bath for iron developers, for after treatment in clearing and for retardation. Above all, it possesses properties which open up a new branch of photography, namely the photography of very strong light contrast.

A BIT OF OCEAN BEACH

Some Modifications of the Gum-Bichromate Process

E. W. Foxlee, in the *Amateur Photographer*.

Having, some two of three years back, to make some rather exhaustive investigations with reference to the behavior of bichromated gelatine and other colloid bodies, when exposed to light, I met with some experiences that, to me, were new and quite unlooked for, and the details of some of them may, possibly be of interest to workers of the gum bichromate process.

The method of working to be hereafter described is based upon what is known in carbon printing as the "continuing action of light," inasmuch as the picture is printed first and pigmented afterwards. It may perhaps be as well to first say a few words on this subject, so that the reader may the better comprehend the principle involved in the modification to be afterwards dealt with.

All workers of the carbon process are aware that a print, after it is taken from the frame, goes on printing even when it is kept in perfect darkness, that is, if it be stored under ordinary conditions. It is now just thirty years ago that the late Mons. A. Marion, the founder of the well-known house in Soho Square, demonstrated, before the London Photographic Society—now the Royal—that the action of light set up in one gelatine film could be continued in another gelatine film that had not been exposed at all, and in this way good pictures could be obtained. The process, "Mariotype," is this: instead of exposing the carbon tissue on the negative, M. Marion exposed the transfer paper, which had previously been sensitized on a rather strong, acidified solution of bichromate of potash. After exposure a piece of carbon tissue was softened in a weak solution of bichromate of potash, and squeegeed in contact with the print on the transfer paper. The print was then put under pressure, to keep it moist, for eight or ten hours. The picture was then put into warm water and developed as in the ordinary way of working the carbon process. In this way a non-reversed picture was obtained; also there was a visible image to begin with as a guide to the exposure. The process, although it promised great advantages, did not come into general use, for the reason that the depth of the prints was greatly dependent upon the time of keeping; temperature was also an important factor in the case—the higher that was, the more rapid was the action. If the mounted prints were kept too long, they proved too dark when they were developed, as if they had been overexposed in the first instance. If kept too short a time, the opposite state of things prevailed. The process of M. Marion, though workable, was considered too uncertain for everyday work, so it passed out of notice.

In my investigations M. Marion's discovery had to be taken into consideration, and I found that by a slight modification the time of keeping, after the tissue was mounted on the exposed transfer paper, could be curtailed from eight to ten hours to two or three. This was done by sensitizing the transfer paper on a neutral, instead of an acid, solution of the bichromate, and softening the tissue in an acidified solution of the bichromate salt. Although the time of keeping the print, between the mounting and development, was considerably shortened, it, as in "Mariotype," is largely dependent upon temperature as well as the amount of moisture present in the papers. Experiments were made to see if free bichromate in the print was really necessary for the continuing action. It was found that it was not, for it could be washed out of the print, and that even dried, if the tissue were softened in an acidified solution of bichromate of potash. Wishing to see how really persistent is the continuing action (I use this term for want of a better), some prints were made on transfer paper, and the bichromate washed out. Some carbon tissue was then softened in slightly acidified water containing a little glycerine, and it was found that the action was still "set off" or transmitted to the tissue. In this way some fairly good prints were obtained. But as this method of working would involve more time and trouble than the ordinary carbon process, without so far as I could see, offering corresponding advantages, the matter was not further pursued. Still, the subject is of interest,

from a scientific point of view, to workers of bichromated gelatine processes.

In all the above investigations we were dealing only with gelatine, and it was necessary to see if the action set up in, say, a gelatine film would be continued in a different colloid—such as gum, for example. Somewhat to my surprise, it was found that it would. Some paper was coated with gelatine, sensitized on a slightly acidified solution of bichromate of potash, dried, and printed. It was then coated with pigmented gum, also acidified, and afterwards hung up to dry. The next day the print was developed, and showed that the action had been transmitted from the gelatine to the pigmented gum film. Here we had the presence of free bichromate, which was objectionable, as it introduced an element of uncertainty, as it did in the original Mariotype process. Other prints were made, the bichromate washed away, and then dried. They were then pigmented with an acidified gum solution, and again dried, and, when developed, they yielded very good results.

Although I am not a worker of the gum bichromate process myself, I could see that this method of working might prove useful to those who are, and for the following reasons: There is a visible image, as some guide to exposure; the proportion of pigment to gum need not be so nicely adjusted, or so neatly applied, as when the film has to be printed through. Also, one may be more independent as to the character of the negative than in the ordinary gum process. It is quite feasible that as the image can be seen, more or less, pigment may be applied locally, and, possibly, of different tints. The first method I worked out is as follows: A hard sized paper, of the surface preferred, is coated with a solution of gelatine, such as Drescher's or Heinrich's. The proportions I found answered well were—gelatine, half an ounce; water, forty-five ounces. The gelatine should be soaked in cold water for an hour or so, and then dissolved by heat. The paper may be coated by floating it on the solution while it is kept warm in a dish, or two sheets, placed back to back, may be drawn through it and then suspended to dry. When dry, the sheets may be separated by cutting round the edges. The latter is the quicker way of working. Either method, however, requires a little "knack," to avoid inequalities in the coating; therefore, the novice is advised to apply the gelatine with a brush. Indeed, with rough papers the brush is imperative. The gelatine is best applied in the following way: Allow the solution to stand all night, and in the morning it will be in a jellied condition. The jelly is then well broken up with a fork, or, better still, forced through rather fine muslin. It is then applied to the paper with a tolerably stiff flat hog-hair varnish brush, working it well into the paper, first in one direction, and then in the other, so as to obtain an even coating. This is necessary, otherwise the finished print will show any streaks that may be left. One coating will be sufficient with some papers, but soft sized or porous ones may require two, or even three, coatings. When the paper is dry it is ready for sensitizing.

SENSITIZING SOLUTION.

Bichromate of potash	1 oz. or 25 gm.
Water	40 oz. or 1 liter.

On this solution the paper is floated for two minutes, and then hung up to dry, of course in the dark. When dry it is ready for printing. The printing should not be too deep, only just sufficient to show slight detail in the lights. After exposure the print is washed until the free bichromate is removed, and then allowed to dry spontaneously. In this state it may be kept for weeks, or may be pigmented at once. Here is the formula for the pigmenting:

STOCK SOLUTION OF GUM.

Turkey gum	4 oz. or 100 gm.
Cold water	8 oz. or 200 c.c.
Carbolic acid	6 drops

When the gum is dissolved it should be allowed to filter through fine muslin. It should not be forced through, as portions of some samples of gum are not completely soluble, and they would pass through if pressure were used, and it is not desirable to have them. This solution will keep well.

PIGMENTING SOLUTION.

Stock solution of gum	4 dr. or 16 c.c.
Water	3 dr. or 12 c.c.
Gylcerine	2 dr. or 8 c.c.
Acetic acid (glacial)	3 dr. or 12 c.c.

It is better to mix the water, glycerine, and acid together first, and then add them to the gum. The pigmenting is done in the usual way. A little of the color, dry or

moist tube color of the desired tint, is put on a glass plate, and intimately mixed with some of the pigmenting solution, using a palette knife for the purpose. No definite quantity of the pigment can be given, as that must depend upon its coloring power; very little, however, is required. Gum workers will know the right proportion to use. The color is applied with a soft hog-hair varnish brush in the ordinary manner, and if a tolerably even coating is not obtained, the surface may afterwards be stippled over with a badger brush. But, as already said, an absolutely even coating is not so imperative as if it had to be printed through. The prints are then hung up to dry, and the next day they may be developed. Development is conducted in precisely the same way as in the usual method of working the gum bichromate process.

In place of gelatine, other substances may be employed for the initial print, such as the starches, tragacanth, and flour paste. Some of these yield, to my idea, better results than gelatine, as they give a surface free from gloss.

It may, perhaps, be as well to point out here to those who may not have considered the subject that the conditions of the formation of the pigment image, in this modified method, are just the reverse of those obtaining when the gum-bichromate process is worked in the ordinary way. In the carbon process, it may be explained, the insoluble-izing action of light on the tissue proceeds from the surface downward, and there is always a soluble layer of gelatine next the paper. It is for this reason that the tissue has to be mounted on another support for its development. In the gum-bichromate process the same conditions obtain, but in a lesser degree, owing to the thinness of the layer of pigmented gum. Still, that portion which is next the paper is in a more delicate and tender condition than the outer surface. In this modified method of working the insoluble-izing action proceeds from the paper upward; that portion which is next it is the hardest, while the outer is the softest; and, as a consequence, the picture will bear a considerable amount of rough treatment in its development, or after-treatment. It also gives us the power of obtaining great vigor. In fact, the vigor is in proportion to the quantity of pigment added to the gum solution. In this way we have the means of obtaining very vigorous results, or soft and delicate ones, from one and the same negative.

In the previous article it was mentioned that colloids other than gelatine could be employed for the initial print—such as starch or flour, also tragacanth, for example. These to my mind, the two former especially, yield better and more pleasing results than does gelatine, and they seem more easy to work. The principle involved is, of course, the same with all, though some little modification in the treatment of the papers prepared with them is required. Here are formulae for the three named that have worked well in my hands. We will take the starch first, which is as under:

Bermuda arrowroot	½ oz.	16 gm.
Water	16 oz.	500 c.c.

The arrowroot should be intimately mixed with, say six ounces of the water in a basin, the remainder of it being put into a small saucepan and brought nearly to the boil and then added to the arrowroot. The whole is then mixed and put into the saucepan and boiled for four minutes, with continual stirring. It is poured back into the basin, and allowed to cool. This had best be prepared over night and it will be ready for use in the morning. Flour paste:

Good wheaten flour rich in gluten	2 oz.	50 gm.
Water	20 oz.	500 c.c.

This is prepared in the same way as the arrowroot (starch) paste, except that it is boiled for rather less time—three instead of four minutes. I may say that I prefer good household flour to what is sold as "pastry whites," as what I have tried of the latter does not seem so rich in gluten as the former, although it was higher in price.

The formula for the tragacanth mucilage stands thus:

Tragacanth	½ oz.	16 gm.
Water	30 oz.	900 c.c.

The tragacanth should be the best white, as sold at the chemist's, and not the "gum dragon" of the oilshops. This is how it is prepared: the gum is put into a beaker with the water, and allowed to soak for a couple of days, with an occasional stir up. At the end of that time it will have become a thick mucilage or "stodge." The beaker is next put into a saucepan of water, boiled for ten minutes or so, and allowed to get

cold. It is then forced through fine muslin, when an even mucilage will be obtained. It is then ready for use. The formula for the tragacanth mucilage is given because with it I have obtained some good results. But it is more troublesome to prepare than either the starch or flour pastes, while, so far as I can see, it offers no advantage over them—rather the reverse, for I have at times found it inclined to "play tricks," for which I am with my present knowledge unable to account. Therefore, on the whole, I would recommend either the flour or starch in preference to the tragacanth or the gelatine. With regard to those two there seems to be no practical difference between them in their working; one appears to be just as good as the other, so that it becomes quite a matter of fancy which is employed. They are applied to the paper in the same way whichever is used. The arrowroot or flour paste having been made overnight as directed, will be found covered with a rather hard layer on the surface the next day. This should be removed with a spoon, and the paste then well broken up to render it easy of application. The best and quickest way of doing this is to squeeze it with some force through rather fine muslin.

With regard to the paper to be employed for the work. It must be a hard-sized one, so that the picture is kept entirely on the surface, for if it sinks into the body of the paper there will be a difficulty in the development of getting the lights clear. If the paper be of a more or less porous character it will be necessary to apply two or even three coats of the paste, or to give it a preliminary coating of gelatine as described in the previous article. The papers I have used have been the Rives photographic paper, as made for albumenizing; hard-sized cartridge, as sold by the artists' colormen; Whatman's water color and similar papers. With any of these a single coating suffices. Two methods may be employed in coating the paper. One is with a flat hog-hair varnish brush, and the other with a piece of soft sponge. The paper being secured at the corners by drawing pins on a flat board or table, the paste is applied freely, and well worked into the paper. If the brush be employed, it should be used lengthwise and crosswise alternately, finishing off lightly so that no streaks are left, as they might, if left, show in the finished picture. If the sponge be employed I find it best to begin with a circular motion and finish off lengthwise and crosswise. Should any lines then remain they may be removed by lightly stippling over the surface with a piece of soft muslin or an old cambric handkerchief. The paper is then suspended to dry. A quantity of it may be prepared at a time, as it will keep indefinitely if kept dry.

The sensitizing bath for these papers should be weaker than for those prepared with gelatine. This is a good strength to employ:

Bichromate of potash	½ oz.	10 gm.
Water	50 oz.	1 liter.

The paper is sensitized by floating it face downwards on the solution and then allowing it to dry, in the dark, of course. As the starch, flour, and tragacanth have different absorptive properties, the time of floating should differ. With the starch a couple of minutes will be about right, with the flour one and a half minutes will suffice, and with the tragacanth one minute or less will be ample. When sensitized, the papers will vary in color. The last named will be the deepest, and the starch the lightest, while the flour will be intermediate between the two. The sensitiveness will also vary with the color—the tragacanth, being the darkest, prints the quickest, while the starch, the palest, is the slowest. The printing should not be carried deeper than to just show the faint detail in the lights, and this will take with what may be termed a medium negative, in a good diffused light at this time of year, from five to ten minutes. Much over-printing should be avoided, as it seems to have a tendency to a reversed action of light. After exposure the print is washed in several changes of water, until all the free bichromate is removed, and the high lights appear white, or nearly so, when the paper is looked through. It is then hung up to dry, when it is ready for pigmenting, or it may be kept for some days before that is done. The pigmenting solution I have found best for these papers stands thus:

Stock solution of gum	4 drams,	16 gm.
Water	10 drams,	40 gm.
Glycerine	2 drams,	8 gm.
Sulphuric acid (1-10)	1 dram,	4 gm.

The water, glycerine, and acid should be first mixed together and then added to the gum and well shaken. I am inclined to

think that this solution answers best when freshly mixed or within a few days after mixing. It will be noticed that this mixture is very similar to that given in the previous article for gelatined paper, except that it contains a larger proportion of water and also that sulphuric acid takes the place of the acetic, as I have found that to work more satisfactorily with the starch and flour papers than the acetic.

A little pigment, dry or moist tube color. is put on a glass slab, and some of the acidified gum solution added and intimately mixed with a palette knife. The proportion of pigment should be much greater than is permissible in working the ordinary gum-bichromate process, and it should be apportioned according to the effect desired. If vigorous pictures are required, more pigment should be used than when soft and delicate ones are the object. The most suitable way I have found of applying the coating is with a soft, flat, hog-hair varnish brush, *used lightly,* working it alternately lengthwise and crosswise of the print, and finishing off so as to avoid streakiness as much as possible. I have sometimes stippled the surface with a badger-hair softener, but that after a little practice has been acquired, will rarely be found necessary. The paper is then allowed to dry, and the next day it will be ready for development. It has just been mentioned that the brush should be used lightly, for if the pigment be brushed heavily into the paper there may be some little difficutly in getting it out again in the development, and, as a consequence, the whites of the picture may be impaired.

The Development.—The print is floated, face downward, on cold water, and allowed to rest for five or ten minutes. At the end of that time, if all has gone well, the pigment will have become loosened in the lights. The picture is then removed and placed on a glass plate under a dribbling tap. The surface is next stroked over with a broad (three or four inch), flat, camel-hair brush, well charged with water, when the color will come away from the lighter portions of the picture. The print should now be replaced on the water, keeping the back dry, for another five or ten minutes, and the brush treatment repeated till the picture is light enough. The development may sometimes be completed in from half an hour to an hour, or it may take two or three hours, or even more in extreme cases. If local treatment is thought necessary for pictorial purposes, a small, flat, camel-hair brush, nearly dry, should be used, or even a soft, hog-hair one, such as those for oil painting, may be employed, as the pigment is very adherent to the paper. Should the pigmented coating prove somewhat hard, or does not yield readily, tepid or moderately warm water may be substituted for the cold, but that will seldom be found necessary. Warm or even hot water may also be used with the smaller brush when it is applied locally to obtain particular effects.

In concluding, I should like it to be distinctly understood that I do not profess that the method of working and the formula given, cannot be improved upon, for I feel sure they may be by those interested in the subject. Still, as given, in my hands, it yields technically good results. As I have already said, I am not a worker of the gum process, for, as a matter of fact, I have not produced a single print by the ordinary gum-bichromate process since it was first introduced by Pouncy, now more than forty years ago. At that time I remember I obtained some technically good results with it, but as the process was not of commercial application I took no further interest in it. My interest in the working of the process here described has been entirely of a scientific character—the fact that the action of light once started in one bichromated colloid can be continued catalytically in another and different one, that has received no exposure at all. Seeing that a picture-making process could possibly be devised based upon that principle, I was induced to make some experiments with that object in view. Personally, I am not a picture-maker, but I thought that the method may be of service to others.

The Amateur and His Troubles

By Fayette J. Clute

That Picture of a Cow

We all have a negative in which the principal object is a cow in a more or less graceful position. Not only is the cow the main attraction but in a majority of cases, the rest of the picture is simply distracting. If you have not such a negative it is because you have never been a true enthusiast. Even the Emperor of China, Tai Tsung, possesses such a picture, only his is a water color. It is mentioned as "among his other treasures." The peculiar thing about his picture is, that when the room is darkened the cow thinks it night and lies down. After explaining this "the Emperor would order the room to be darkened, and the cow would be seen to be lying down, apparently asleep." This is all a hint as to how you can possibly revive the waning interest in that early triumph, the picture of the cow. You have simply to paint over the original picture, with white luminous paint, another of a cow lying down. The paint is made as follows: Melt Zanzibar copal over a charcoal fire and then dissolve 15 parts of it in 60 parts of French oil of turpentine. Filter and mix with 25 parts of pure linseed oil which has previously been heated and cooled. To 40 parts of the varnish so obtained mix with 6 parts of prepared calcium carbonate, 12 parts of prepared white zinc sulphide and 36 parts of luminous calcium sulphide; all of which can be obtained of any chemist. The whole should be ground very fine in a color mill.

Bird Photography

C. William Bebee, Curator of Ornithology at the Bronx Zoo, New York, can evidently give pointers to some of the photographers who have so fully exploited their work in this line in the photographic magazines within the last year. According to a report in the lay press, Mr. Bebee says: "One day I was very anxious to obtain a photograph of a parrot in the act of eating and the idea occurred to try mesmerism. Taking the parrot to a quiet part of the park, where the light was good, I got him under my control and then willed him to go through the motions of eating after I had focused my camera. You can imagine my delight when the parrot slowly lifted its claw to its beak. This was repeated three times, and I don't think it was a coincident. The photograph is one of my proudest possessions." Included in the vast army of Camera Craft readers there must be some few as competent in this branch of science as Mr. Bebee. They have but to carry the idea a little further and exercise their powers upon some trifling more demonstrative member of the animal kingdom and astonishing results are assured; results that will at once place them in the front rank as photographers of natural history subjects.

Color of Wall Covering

A correspondent "back east" has fitted up the upper story of a small stable as a home studio, and as the framing of the building would not allow as much light as he wished to introduce, he thought to cover the walls so that there would be as little loss as possible. He thought it would be a good idea to paper them yellow and carry out a color scheme with that as the key. Another advantage he expected to realize was the tendency of yellow to photograph several tones darker than it appeared visually; in fact, that was the reason he chose yellow instead of white. The yellow would allow him to photograph his subjects with the walls as a background. The arrangement failed, and failed utterly, to give good results. The reason was found to lie in this same difference between the visual strength of yellow and its photographic qualities. A combination of his direct light and a reflected yellow light from a near wall would be all that was desired on the groundglass only to prove something entirely different in the negative. Where the reflected light was expected to illuminate the shadows, no such effect would appear. The result was that the entire color scheme had to be changed and one substituted that harmonized with a pale, bluish grey covering. The apparent illumination and the photographic results then harmon-

ized perfectly. His negatives then gave him the same lighting that his groundglass had indicated at the time of the sitting. This point is worth considering by those intending a like arrangement as well as to those who have failed to understand certain results in portrait work made with reflecting surfaces of a yellow tinge near their subjects.

A Valuable Collection

Mr. W. I. Scandlin has a collection of about two hundred negatives made fifty years ago by Victor Prevost, one of the pioneer photographers who had a studio on Broadway, New York, for so many years. These were all made on waxed paper; the forerunner of the glass plate at the time that our present photography was beginning to supersede the daguerreotype process. They are of various sizes, some being over fifteen inches square. As they required an exposure of from fifteen minutes to an hour it is easily understood that there are no portraits in the collection. The rarity of these examples can be better understood when it is remembered that the Smithsonian institute possesses but twenty examples and the photographic department of Columbia institute, which has one of the best collections in the country, has but six. Mr. Scandlin is to be congratulated.

A Few Lens Terms

A correspondent writes to say that he would like to see a good explanation of the terms, back focus, equivalent focus, and optical center. To begin, back focus is sometimes given in the makers catalogue to indicate the amount of bellows extension demanded for any particular instrument. It is the distance from groundglass to the back flange of the lens. Equivalent focus means the distance between the groundglass and the lens center when focused at infinity. This lens center is in most cases near the diaphragm slot in a rapid rectilinear or anastigmat doublet, and at the front surface of a single combination. In some combinations built up of several lenses, this optical center is outside the mount of the lens; noticeably in the case of the telephoto lens, where it is several inches in front of the lens combination. Its position can be determined by making the conjugate foci equal on both sides of the lens as is done when copying full size, and then finding the exact center between groundglass and object and dividing this distance by two. The resultant distance measured from the groundglass when the lens is again focused on infinity, will show the position of the lens center or nodal point of emission. It is from this point that the focal length is measured and consequently the measurement just secured by halving one of the conjugate foci, is the equivalent foci of the lens. The conjugate focus is the distance on either side of the lens when enlarging or reducing and varies with the degree of such enlargement or reduction. When copying full size both back and front conjugate foci are equal and just double the equivalent foci of the lens.

A Good Book to Have Around

I have just finished a very close examination of "The Figures, Facts and Formulae of Photography and Guide to Their Practical Use." You all know that I rarely use this page to recommend any special article, but this book is such good value and withal so thorough, compact and well arranged, not to mention its being thoroughly up to date, that I can not neglect mentioning it. It costs a dollar and is worth ten. Tennant & Ward are the American publishers. Any dealer carrying the "Photo-Miniature"—and who does not?—will supply copies.

A Warning

Radium is receiving a good deal of attention just at present, and fearing some of my readers may not understand the danger of carrying it around without due protection, it might be well to mention that a small piece no larger than the head of a tenpenny nail, carried in the waist-coat pocket for a few hours, gave Sir William Crookes a nasty blister in the side, that was very slow in healing. The metal costs something like $900,000 a pound in Germany, and at that rate the dealer ought to supply you with a protective case of lead at no additional charge.

Printing Under Tissue Paper

A reader has been trying the plan suggested in a former issue of printing weak negatives under tissue paper to improve the results. He writes to complain that such treatment gives him no appreciable improvement. He also mentions the use of yellow tissue to improve contrast and blue to decrease hardness in printing gaslight papers, with the same poor results. It is doubtful if such practice will have any effect in the

case of developing papers. In the case of printing out papers, the use of tissue, either white or green has been advocated for years as a method of more or less improving the results as well as helping to give better tones in the finished print. The theory is based on the fact that the emulsion with which the paper is coated contains both silver citrate and silver chloride. The former is sensitive to the greens and yellows and less so to the more actinic or blue rays than the latter. It also gives a darker, more black image than the chloride salt. In sun printing from foggy negatives only the chloride is acted upon by the most active rays and we have the muddy-red tones and flat results so common to prints from such negatives. By printing under green glass or green tissue one allows the citrate salt to assert itself and a more brilliant better toned print is secured. It is well known that variations in the proportions of these two salts in the emulsion will compensate for almost any lack of quality in the negative, but the makers would hardly find it profitable to turn out several qualities.

A Photographic Digest

By Dr. H. D'Arcy Power

Moonlight in the Mountains

The *Photographische Rundschau* for July contains an article on the above subject by Dr. Muhlstadt. As California possesses unrivaled scenery in its upper mountain ranges, and as the next two months will provide the best moonlight of the year, a slight consideration of the subject may be opportune. In a general way, speaking from my own experience, moonlight exposure at F-8 requires from 20 minutes to an hour. Thus the white building of the state capital yielded me an excellent negative in 20 minutes. A good river picture was obtained in half an hour, while views in Golden Gate Park have needed a full hour. This agrees with Dr. Muhlstadt's statement that an open landscape on the plain needed 25 minutes. But in the clear air of the higher ranges with their covering of snow the doctor found that an exposure of from half to one minute was sufficient.

The photographs illustrating his article show beautiful gradation and qualities that can be obtained by no other illumination. They in no way resemble the fake photographs made by a short exposure to sunlight. There can be no question but what many beautiful things are to be obtained in this manner; and that subjects which are unsatisfactory under ordinary illumination, may become objects of beauty under the soft light of our satellite.

Dr. Muhlstadt points out that plates may be changed and developed in safety by the light of the moon at ordinary levels, but in the high mountains this is not so.

Acetylene—New Possibilities

Acetylene has not become the universal illuminant that was at one time anticipated, and the chief reason has been in the faults of generators and holders. Generators leak and are troublesome to clean. Holders are too dangerous. Now comes a new discovery that promises to overcome these difficulties, thanks to the labors of M. Fouche, it has been ascertained that just as water absorbs many times its volume of ammonia gas, so the substance known as acetone is a solvent of acetylene. In this way it is possible to store in a tank of 20 cubic feet, 2,000 cubic feet of acetylene at a pressure of 150 pounds, or 4,000 at 300 pounds, and this moreover with perfect safety.

Safe Light for Orthochromatic Plates

There are few photographic workers whom it is safer to follow than Sir Wm. Abney, so that the following pronouncement in favor of a green light may be accepted as a valuable and tested fact. In a special article to *Photography* Sir Wm. Abney deals with the general question of lighting, and points out that so long as direct light is not employed we have great latitude in development, thus ordinary plates may be safely developed in the light of a candle reflected from the ceiling, and that the writer himself does not employ a red light and "uses

a paper lantern made of one thickness of canary medium and another of orange paper instead of any pure red light. The lantern has a window at one side where the light coming through has only to pass through the canary medium, the orange paper being cut away. This window is utilized when the negative is nearly complete. The negatives developed in this manner show when fixed unfogged gelatine where the rebate of the slide comes."

This light, however, is not safe for orthochromatic plates, but says Sir William:

"There is, however, for isochromatic plates a much pleasanter light, and one practically white to the eye. If a lantern be formed of chromium green glass, and orange paper be pasted on the glass, we have the light from a candle coming through it apparently white, and when it falls on a white surface in a dark room, such surface appears colorless.

"This light, though extremely feeble, will so illuminate a plate that the detail of the image can be seen. In reality it is such a feeble light that the red in it ceases to excite the retina, and the green that passes through is so lowered in intensity that it loses its color.

"An isochromatic plate can be developed in this light, for it will be some time before it would fog a plate lying horizontally in the dish, the principal part of the light being composed of those rays which lie in that part of the spectrum to which the eosine does not sensitize.

"A blue-green glass (often called signal green) is better for some than the chromium green, but it should be of strong color, or else two thicknesses must be used. This cuts off more of the red and orange than the chromium green."

Some Developer Tests

Mr. J. Gædicke, in the *Photographische Wochenblatte* of recent date, has made an interesting comparative test of developers. Each new developer has its champion, and it is rather hard sometimes to get down to the real facts. In testing developers, it should be remembered that the plate which records the impressions must be harmonious, that is, capable of giving a good tone value to the high lights, shadows and intermediate tones, and not too contrasty or too flat, as the case may be. A series of developers was made up and plates developed in them which had been exposed under a sensitomer made of 16 steps or layers of onion skin paper. The records were as follows:

Developer	The Picture appeared in	Length of Development	Last Number Visible	Intensity
Rodinal	25 sec.	3 min.	13	Moderate
Edinol	22 "	3 "	13	Mod., very clear
Pinakol	15 "	2 "	13	Moderate
Adurol	20 "	3 "	13	Strong
Amidol	13 "	2 "	13-14	Pretty strong
Ortol	21 "	2 "	13	Little less strong
Glycin	37 "	4 "	13	V. str'g, V. clear
Metol	5 "	1 "	13	Moderate
Hydroquinone	80 "	5 "	13-14	Strong
Pyrocatechin	165 "	11 "	13-14	V. str'g, V. clear

The most rapid developer is metol; the slowest glycin, hydroquinone and pyrocatechin; the most intense negatives were produced by glycin, hydroquinone, adurol and brenzcarechin, the clearest by pyrocatechin, glycin and edinol.

The keeping qualities of the solutions which are ready for use are excellent in the case of rodinal, but remarkable in the case of adurol. Amidol and ortol also keep well, edinol and pinakol will keep least of all. From the above experiments it appears that adurol and glycin do not receive really as much consideration as they deserve, which is possibly due to the fact that the public is not sufficiently familiar with them. Adurol possesses the following advantages:

First—A solution of adurol ready for use and in the proper strength will keep perfectly white for a very long time even when the bottles are only partially filled and in this respect it is superior to the other developers especially to edinol and pinakol and pyrocatechin.

Second—Adurol is the quickest working developer of those four developers which yield the best intensity and it combines in the highest degree speed and intensity.

Third—From the experiments it had been shown that adurol produces negatives which render more correct true light values than any of the other rapid developers.

Fourth—It is superior to hydroquinone for the reason that it is not effected by the temperature.

Chloride of Gold as a Developer

Dr. Homolka recently announced at the Photographic Association of Vienna that he had developed the latent image with a one in the thousand solution auric chloride acidulated with phosphoric acid. A plate required fifteen hours to develop in this manner, but a silver printing-out paper (such as solio) if exposed under a negative for twenty seconds will develop to a fine blue violet positive in about three hours. After exposure the print should be washed before development (presumably away from direct light).

The Metol Hydrochinon Developer for Bromide Paper

The *Photographische Wochenblatt* contains an analysis of the various forms of this developer as recommended by the different paper makers. The following table gives the results in parts per thousand of twenty-two principal kinds:

Number	Brand of Paper	Sulphite of Soda, Cryst.	Sulphite of Soda, Dry	Carbonate of Soda, Cryst.	Carbonate of Soda, Dry	Carbonate of Potash, Calcined	Hydrochinon	Metol	Potassium Bromide	Water
1	Eastman	38	19	38	13	—	3,5	1,5	0,5	1000
2	Imperial Dry	35	18	35	12	—	2,8	3,5	1,5	1000
3	Cadett	20	10	25	9	—	3,0	6,0	2,0	1000
4	Ilford	25	12	13	5	—	1,5	3,0	1,5	1000
5	Talbot	25	12	25	9	—	1,0	1,5	—	1000
6	Tackels	45	22	15	5,5	—	4,0	2,0	—	1000
7	Schwerter	45	22	50	18	—	6,0	4,5	—	1000
8	Weber	30	5	15	5,5	—	2,0	3,0	—	1000
9	Bromaryt	50	25	20	7	—	4,5	1,5	0,5	1000
10	Liesegang	50	25	130	48	—	6,0	2,0	0,5	1000
11	Monckhoven	50	25	60	22	—	6,0	1,2	—	1000
12	Wellington S. C. P.	50	25	50	18	—	5,0	1,7	1,0	1000
13	Paget-Prize	50	25	50	18	—	3,0	6,0	0,7	1000
14	Mimosa	80	40	50	18	—	6,0	4,5	—	1000
15	Schauffelen	100	50	16	6	6	3,3	2,0	2,0	1000
16	Lainer-Wien	50	25	—	—	25	2,0	6,0	1,0	1000
17	Wellington B	60	30	—	—	15	2,0	6,0	1,0	1000
18	Barnet-Elliott	74	37	—	—	25	4,0	6,0	1,5	1000
19	Marion-London	50	25	—	—	50	2,8	2,8	0,7	1000
20	Gevaert	60	30	—	—	20	2,0	6,0	1,0	1000
21	Smith-Zurich	50	25	—	—	50	7,0	2,3	0,5	1000
22	G. S. Paris	70	35	—	—	35	5,0	5,0	0,5	1000

This would give an average developer of the following constitution:

Hydrochinon	0.40
Metol	0.35
Sulphite	2.50
Carbonate (dry)	2.00
Bromide	0.08
Water	100.00

Compound Printing

All of our readers who are engaged in pictorial work should read No. 769 of *Photography*, August 8th. Mr. Wickison shows with illustrations how to make a picture from four separate negatives and succeeds in a manner that is far from common; and Mr. E. Marriage has an illustrated article on the rendering of running water, in which he shows that the problem of giving detail in the surroundings and movement in the water can easily be accomplished by successive printing from two plates, one a very short exposure for the water, the other of sufficient length to give rocks, banks, etc.

Light in Home Portraiture

In taking pictures by the light of a sitting-room window it is not only necessary to consider the distance of the subject from the window but also the size of the window. The relation these two bear to one another has been the subject of a theoretical and practical study by Mr. John Randall, whose results are summarized in the following table published in *Photography:*

Distance from window in feet	Area of window in square feet								
	16	25	36	49	64	81	100	121	144
1	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.	1.
2	1.5	1.4	1.3	1.2	1.2	1.2	1.2	1.1	1.1
3	1.7	1.6	1.5	1.4	1.3	1.3	1.3	1.2	1 1
4	2.	1.8	1.6	1 5	1 5	1.4	1.4	1.3	1.2
5	2.6	2.	1.8	1.7	1.6	1.5	1.5	1.4	1.3
6	3.3	2.5	2.	1.8	1.7	1.6	1.6	1.5	1.4
7	4.	3.	2.4	2.	1.8	1.7	1.7	1.6	1.5
8	5.	3.5	2.8	2.4	2.	1.8	1.8	1.7	1.6
9	6.	4.	3 2	2.8	2.3	2.	1.9	1.8	1.7
10	6.8	5.	3.6	3.4	2.6	2.2	2.0	1.9	1.8
11	8.5	6.	4.	3.6	2.9	2.4	2.2	2.0	1.9
12	10.	6.8	5.	4.	3.2	2.6	2.4	2.2	2.0

The figures on the top line indicate the area of the windows in square feet; the first column on the left the distance from the window. Thus the relative exposures from one to twelve feet from a window sixteen square feet will be as 1.2 to 10; from a window 144 square feet area, as one to two.

These figures refer to the light which strikes a surface parallel to the window, and not to that falling along a horizontal plane. The illumination on a sitter placed in the usual position would be of the nature here assumed.

Notes and Comment

He Can't Be Found

It is impossible to find a single Californian, who does not enjoy camping in the woods by a fresh water stream as the best form of a vacation. The fact that there is so much work connected with the ordinary way of camping, however, deters many from enjoying their heart's desire. But now the problem has been solved in the opening of Camp Vacation. Here you sleep in a tent, neatly furnished, and as well taken care of as any hotel room; while three times a day you enjoy the best meals, in the most comfortable dining room ever thrown open to hearty appetites. So you see all you have to do is to enjoy yourself boating, fishing and swimming in the Russian river, and taking long walks through beautiful redwood forests. At night, seated around a huge camp fire, you can spoon until the music starts in Social Hall. Then—well, then—all right.

Amidol and Success

Are you interested in innovations, and do you desire to keep abreast of the times? If so, I will take the liberty to acquaint you with a few facts.

Most all the amateurs do not remember, or even do not know of the old Albumen days, accompanied by difficulties and disappointments, when the photographer was compelled to get up before sunrise to silver and fume his paper for a day's good work. If it clouded up and rained, there was time, patience and money lost.

What a boon to the photographer was the advent of the ready-prepared P. O. P.

Still, in those days there were people in ruts the same as at the present time, who could not immediately see the advantage of this paper, or were skeptical, with the result that they lagged behind those who at once realized its advantages.

History is repeating itself, for the lag-behinds in a rut do not realize the advantages of the newer wash chloride developing papers.

These papers are now on the market with the principal objection overcome, viz., an even coating of emulsion and uniformity of speed. Furthermore, the surfaces are such as to give all sorts of effects including an absolute carbon and platinotype. Blue-black, black, gray-black, brown-black and sepia tints are obtained by the strength of the developer and length of stay in the fixing bath with Alum.

How this paper simplifies things! You do not have to depend upon old Sol. Three hundred prints can be obtained (by hand) in a day, although three thousand can be printed by the new McIntire Photo Printer. Enormous amount of time saved, and last, but not least, no gold nor platinum used.

Most all the papers on the market today are very good, but what surprises me is that so little attention is given to the developer. It seems that those who are using these papers are satisfied with the old standby "Metol-Hydroquinone" not realizing that more brilliant results than they are getting can be obtained with these papers.

I have tested these papers with every developer on the market and find that with Amidol, and used with my own formula, results are obtained as with no other formula or developer. I make up a stock-solution of

Water .....40 oz.
Sodium Sulphite Cryst... 2 oz.

For use above stock
solution .....10 oz.
Amidol, dry .....40 grains
Ten per cent Sol. Bromide 5 to 10 drops

If I have not my weights handy, I use a fairly new ten-cent piece to weigh my Amidol. This gives me exactly 38 grains.

Forty grains of Amidol will produce a blue-black. This can be modified to a gray-black by using less Amidol. I sometimes use Bromide papers for contact printing and find the Amidol gives me the same rich brilliant effects, but I take only 30 grains to the above formula. H. C. A.

Exposition Progress

Colonel John A. Ockerson, Chief of the Department of Liberal Arts of the Universal Exposition to be held in St. Louis in 1904, is in receipt of information from the British Royal Commission, indicating that the photographic exhibit from Great Britain will be the most elaborate and complete ever made by a foreign country at an exposition.

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CAMERA CRAFT

Third San Francisco Salon

Northwestern Convention

Newspaper Artists' Exhibition

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IN CORRESPONDING WITH ADVERTISERS PLEASE MENTION CAMERA CRAFT

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

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The Third San Francisco Salon

By ARNOLD GENTHE

If a jury composed of three artists and two photographers, out of about 900 submitted pictures selects only 175 as possessing real pictorial merit, it has to be prepared to be criticized for undue severity or even actual incompetency by those who were left out or had only one or two of their pictures accepted. But if the result of that severity is an exhibition of really good photographs that show evidence of individuality and artistic feeling, and a serious striving for pictorial effect, the stand taken by the selection committee may appear more justified. And this year the number of actually bad pictures shown is materially less than it was in the two previous exhibitions.

To cover the walls of the Searles' Gallery, which are very high and 110 feet long, with the small number of 175 pictures would have been impossible if an arrangement had not been adopted that in every way improved the general impression produced by the exhibition. Running a broad picture moulding along the walls at the height of about eight feet, and breaking the surface of the walls by well placed palm trees, made it possible to hang the pictures in small groups that were thoroughly pleasing to the eye.

The chief significance of this year's Salon, however, does not lie in the high average of the pictures shown, but in the fact that for the first time we have here in San Francisco the opportunity of seeing the work of some of America's greatest photographers. Placed separately from the exhibition proper, is the loan collection of the Photo-Secession, a society which has its headquarters in New York. Alfred Stieglitz, to whom more than to any one else the advancement of pictorial photography in America is due, acts as director. The members of this association have for an object the furthering of photography as applied to pictorial expression. They want to draw together those Americans practicing or otherwise interested in the art, and to hold exhibitions in various places, occasionally sending loan collections to other exhibitions not subject to the judgment of a jury. And so it is now our good fortune to have the opportunity to study the originals of pictures by such masters as Mrs. Käsebier, Steichen, Clarence White, Alfred Stieglitz, Joseph Keiley, William Dyer and of about a dozen other prominent and well-known Eastern workers. If our Salon had no other merit than to be a motive for the presence of these leaders, the time and efforts of the various committees would not have been spent in vain.

Being a member of a jury of selection is a dubious pleasure, and to have besides to write a critical review of the pictures is worse. But since the editor

of this magazine had to leave the city just before the exhibition opened, he asked me to write a criticism of the Salon, which I reluctantly consented to do. To simply follow the catalogue—which, by the way, is a typographical masterpiece—the reproductions are excellent throughout, though some of the pictures seem to have been selected more because they might appeal to the popular fancy than on account of their artistic merit. To treat the pictures according to their alphabetical order seems the most practical though rather monotonous way of proceeding with this task.

S. Aronson's portrait is a well modeled head of a man. Each of the three examples by Mrs. Laura Adams Armer shows the strong individuality of this worker. Her best picture is the portrait of Miss Whitaker. There is something classical about the simple dignity of this head. The placing of the group No. 3, composed of a scared-looking baby and a woman leaning over her with motherly tenderness, in a narrow horizontal panel, does seem rather forced. "Laurels," No. 4, is a lonely figure (considerably worked up with the etcher) in a grove of trees, quite à la Doré. "Twilight," No. 5, by Brookins, gives an interesting silhouette of a town against a good sky.

Mrs. J. C. Bennett of Baltimore is an artist of laudable versatility. She has some cleverly composed groups, one of which, "In Ye Olden Days," No. 8, shows a good attempt at a rather difficult theme. Though the figures lack spontaneity, the effect is altogether pleasing. But her best picture is the head of a boy, No. 9, whose eyes, shadowed by a tam o' shanter, look at one with quiet seriousness.

WINTER TWILIGHT BY ADOLPH PETZOLD, PHILADELPHIA

THE PALO ALTO
by B. W. CRANDALL
PALO ALTO, CALIFORNIA

A VITRE STREET
by WALTER ZIMMERMAN
PHILADELPHIA

IN YE OLDEN DAYS
by MRS. JEANNE BENNETT
BALTIMORE

The child in No. 11 is a masterpiece, but the picture as a whole is spoiled by the disturbing dress of the woman. "Primroses," No. 6, shows a girl silhouetted against the white curtains of a window. Altogether Mrs. Bennett's work denotes a fine perception of the subtile play of light.

Mr. O. Boyé, shows a forceful and well-lighted likeness of Joaquin Miller, No. 13,—but why write the signature in the center of the picture on the upper edge of the sleeve? He also exhibits a portrait of a handsome girl and her very smart frock. Mr. John A. Bishop has succeeded in presenting in his little Switzerland picture, No. 16, a very realistic effect of sunlight struggling through a misty valley. The white stems of the trees on the left seem unfortunately out of tone. Annie W. Brigman is represented only by one print, "A Soldier of Fortune," No. 17, a firmly modeled face and well indicated texture making a splendid bit of realism.

Of Dr. George W. Bull's four pictures, technically the most satisfactory is "The Artisan," No. 19, a subject which, though not particularly original, is treated with a skillful preservation of the tone values that is not common. The faked moon in No. 18 rather detracts from the good water while the straightforward quality of the print, "The Mission Fathers," is quite refreshing.

"Sunset," No. 23, by F. M. Braddock, suggests the quiet of the evening in a truly poetical manner, but the other three landscapes are simply well-focused, cold-blooded photographs, without any interest. P. S. Bruguiere's "Trees and Clouds" would be most enjoyable if the artist had not deemed it necessary to over-print the sky. He certainly had a magnificent subject in those beautifully drawn trees. B. W. Crandall's "Palo Alto," No. 28, could have been made into a satisfactory composition by changing the lines of the foreground, while No. 27 is a pictorially inoffensive print of two well-placed Angora kittens. George M. Crowe has three good landscapes with careful consideration of the important masses. The frame of No. 30 is most inappropriate, and No. 29, "The Boy Fisherman," ought not to have been printed through bolting cloth.

Edgar A. Cohen's pictures are fortunately better than their titles. The silhouette of the group of goats in "Mt. Tamalpais Chamois," No. 33, against the hazy distance is a good subject, and the fog in the picture with the long title is very real, but the placing of the trees is not quite successful. A. H. Cowan's "Path Through the Woods" is a rather chalky affair.

In Blanche Cumming we find a worker of good promise. Her portrait work is distinguished by an unaffected simplicity, of which No. 37, "Portrait of a Boy," and No. 40, "Study of an Old Lady," are the best examples. The white round cuff in No. 35 spoils a little the effect of the wonderfully plastic profile of Mr. Burbank. A very unobtrusive little landscape is W. G. Corthell's "Lake Killarney," No. 41, while John Dolman's "The Lake," No. 42, is more a study of tree trunks outlined against a quiet surface of water. There is indeed nothing particularly exciting about George A. Dolan's "Tranquillity," No. 43. D'Estrella has managed to produce the effect of a steel engraving in his "Rio Chico," No. 44.

That Dr. Detlefsen is represented only by one picture is to be regretted, though the one print, "Playmates," No. 45, is in the best style of this clever artist. Two years ago W. E. Dassonville seemed rather under Detlefsen's influence, but now he has struck an original note with most happy results. His "Margaret," No. 49, is one of the best things in the exhibition. It depicts the unconscious charm

THE BOY BY LAURA ADAMS ARMER, SAN FRANCISCO

of girlhood in a truly fascinating manner. In the landscapes Dassonville fully maintains his established reputation. His selection is decidedly original and he uses a difficult printing medium with good taste and rare skill.

W. H. Evans affects a crispness which somewhat helps the snow effect in No. 52. Gustav Eisen, who has ten frames, was evidently puzzled by the wealth of material he found in Guatemala, and as a result his pictures lack concentration. There are good pictorial elements in some of his photographs—for instance the figure on the right in No. 56, "At the Door of the Fonda," is a very decorative study, but he confuses them by his method of including too much in one picture. "Sacrificing to His God" would be more impressive as an upright panel. The uninteresting and rather aggressive detail in No. 57, "The Painter of Saints," could be obliterated in a gum print. Some of the pictures have perhaps greater ethnological than artistic interest, but No. 54, "At the Convent Door," and No. 62, "The Fountain," are good compositions. No. 63, "The Pool of San Cristobal," contains some fine figures.

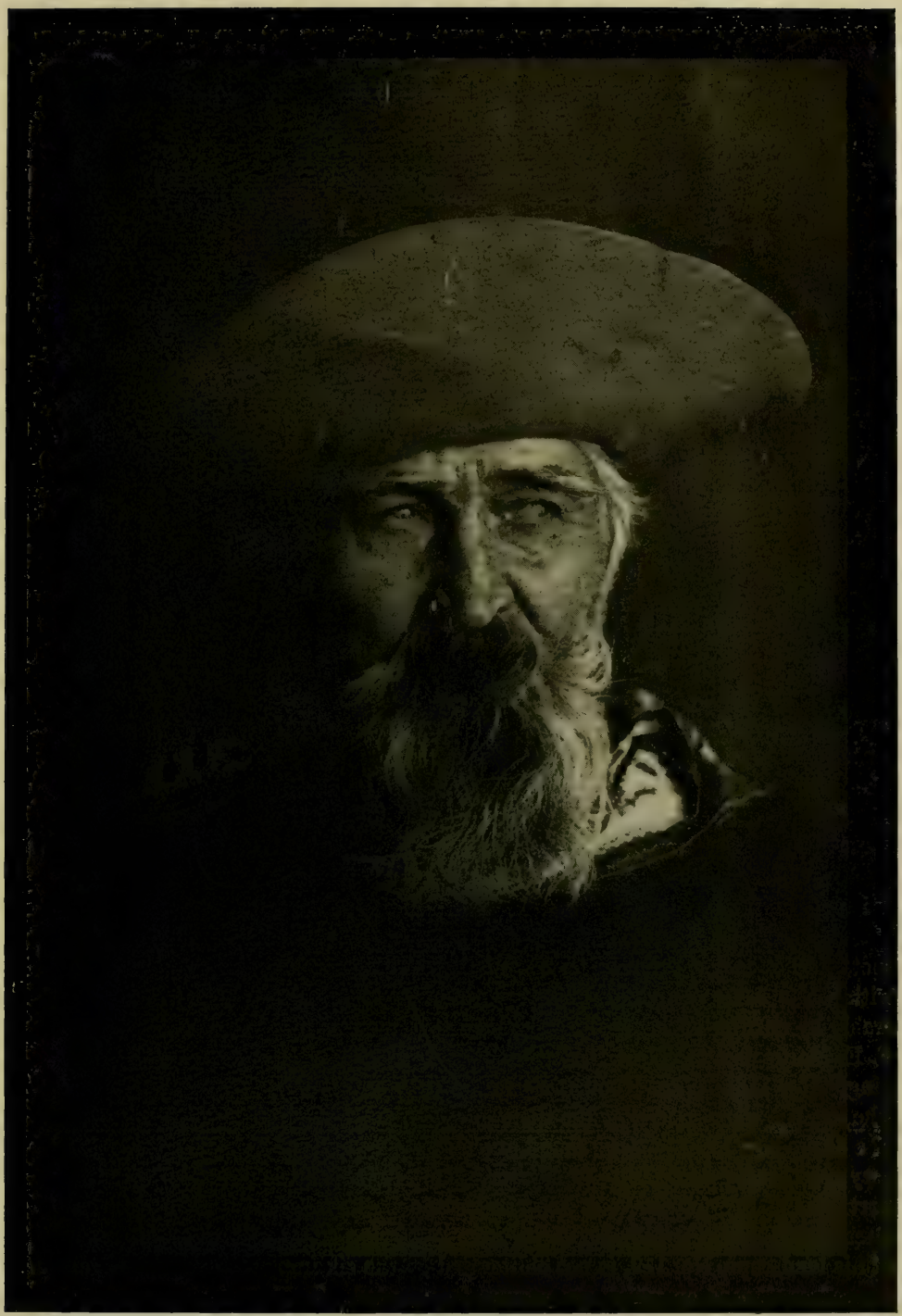
Dr. T. Fletcher made effective use of a good opportunity in "The Ford," taking the wading team just at the right moment. F. Frohman's "Soapsuds and Tears," No. 65, is full of human interest, from which the spotted background detracts. L. Fleckenstein has a good gum print of an old man—the stooping figure and the hand with the pipe are quite unphotographic,—the one of a walking milkmaid shows much better principles of composition than the winter landscape, No. 67.

A. S. C. Forbes' "A Bit of Old Holland," No. 69, with the effective silhouette of a barge in the foreground, is of geater artistic merit than Mrs. Forbes' contribution, No. 70, a flock of scattered sheep, grazing. W. P. Gunthrop's exhibit "On the Chicago River," No. 71, deserves credit for the fine rendition of atmosphere. Helen P. Gatch's "Industry," No. 73, treated in a rather low tone, is a finer work than the shaggy head with the theatrical highlights, called "King Lear," No. 72. A characteristic bit of Chinatown life, as we see it today in San Francisco, is H. B. Goldsmith's "The Tooter," No. 74. Unstinted praise must be accorded to two pictures by Adelaide Hanscom: the gum grint called "A Sketch," No. 78, is a very cleverly

handled portrait of a child in a most natural pose, and in No. 77, "Mother and Child," the true spirit of mother-love and child-confidence is beautifully depicted. Her other picture of a similar subject (which was reproduced in the catalogue), is rather posy and lacks a certain gracefulness of lines. Grace Hubley is evidently satisfied with the achievement of rather unambitious work; her "Clift," No. 81, is a fine dog. H. A. Hess' "A Note From the Sea," No. 83, represents a seated boy playing the flute and is as stilted as its title. "The Creek," No. 84, is a pleasing bit of landscape. From Charles G. Hass comes a little head that would be quite acceptable, if the outline of the shawl that covers the girl's head were managed with better skill.

James A. Haran exhibits two good Indian pictures. The crying baby and the encouraging mother make a splendid group full of human interest. The difficult drapery is well handled in this photograph as well as in the other picture "A Siwash Belle," No. 86, the figure of a girl standing against a well-chosen background. "The Dressing Tent" of E. W. Humphreys, No. 88, is a feeble attempt at a theme that could have been utilized with good success by one who had a better knowledge of composition. The merit of H. S. Hoyt's Mission picture seems to consist in the good placing of the tree, which helps to overcome the exaggerated foreshortening of lines in the building. L. H. Keller contributes three pictures of which "The Newsboy at Night," No. 92, is the most original, with its decidedly clever suggestion of lamplight and rain. "An Artist at Work," No. 91, is unusually well posed and shows an effective way of handling half light. L. M. Kaiser has in his "Sands That Edge the Ocean" a good composition of a subject, that on

SACRIFICING TO HIS GOD — BY GUSTAV EISEN, SAN FRANCISCO



THE SHERIFF
by MAURICE STEWART
OAKLAND

account of its very simplicity is difficult. Mrs. C. M. Kassler's picture of an interesting old man with a broad hat, No. 94, is a well arranged portrait, full of spontaneity, but in its chalky whites too much like a flashlight. E. H. Kemp has two rather carelessly made enlargements of excellent subjects. The "Crossing the Desert," No. 95, with its fine sky, is an impressive composition, and "Watching the Sunrise" would be a remarkably decorative thing if the silhouettes of the standing figures would appear less as if they were cut out of back paper and pasted on the print.

A. J. Le Breton's best picture is a study of an elderly woman, No. 97, full of deep human interest. Unfortunately the sharp angles of the hat are too much accentuated against the light background. The boys bathing, No. 98, presented a fine opportunity for a study like those with which Gloeden has made us familiar. H. M. Lamb's "Dorothea," No. 99, would be just as pretty if framed in something other than a gothic arch. O. V. Lange does not show this year any of his excellent flower pictures, but the landscape with the magnificent Monterey cypresses and its rather dramatic sky is a good example of his composition-printing, in which two or more negatives are used for the production of the one picture. F. E. Monteverde displays quite a versatility in his five pictures. "Peonies," No. 101, is a very careful arrangement without an attempt at particular originality. As a picture by far superior is "A Study in the Nude," which shows an exceedingly well lighted female figure, free from all suggestiveness. It is a thoroughly meritorious piece of work. "Saint Cecilia," No. 102, displays the same judicious use of light, while the two other pictures (a landscape and a girl standing in a doorway) are rather mediocre in treatment and selection. Oscar Maurer does not quite justify our expectations. His portrait, No. 107, of Mr. Cowell, lifelike and well posed, suffers from lack of modeling on the light side of the face. A refreshingly daring experiment is the "Gulls," quite Japanese in its decorative quality; it reminds one very much of Hiroshige. The "Santa Barbara Mission" is an original treatment of a much photographed subject, while the landscape, "In Holland," No. 109, is hopelessly uninteresting.

B. Marquis' figure near a window shows good handling of difficult white spots. B. J. Mitchell has made a laudable attempt to get a good angle on a bridge with white railing, and C. W. Mogg could have improved his landscape considerably by cutting off about one inch on the left. The "Dancing Girl," No. 114, of F. E. Marks, is a more original attempt than his technically perfect print of "Shipping," No. 113. I. M. Neumann's rather grey and flat landscape will please those who see the same values in the distance as in the foreground. E. W. Nott's head of a darky boy, No. 116, is as round and shining as a billiard ball. E. F. Oyster has a very good arrangement in "The Mirror," No. 117; it is to be regretted that the lower part of the composition did not receive more attention. W. G. Parrish's "Day Dreams," No. 118, is too posy to produce a pleasing effect, and the harmless quality of his landscape, No. 119, is not obliterated by the six impressive layers of variously colored cardboard on which the picture is mounted. T. H. Palache has done much better things than the view of Monterey cypresses, No. 120, which rather looks like the stereotype photographs made for the benefit of tourists.

A. Petzold shows a set of four pictures of varying merit. "Winter Twilight," No. 124, with its subtile suggestion of the fading light playing on the snow, is admir-

able. In "Solitude," No. 121, a delicate, dreamy effect is produced with surprisingly little means. The effort to treat a commonplace subject, "A Rainy Day," in an interesting manner is not successful, and in "The Cronies" the parallel lines of the background are rather disturbing. E. E. Pollock has a charming model in No. 126, but the angular effect of the drapery on the right shoulder is not excusable. George T. Power ought to have named his "House on the Hill," No. 127, differently. The picture mostly consists of a road. The portrait, No. 128, is a carefully arranged figure of a man writing; the lighting avoids unpleasant accentuation of disturbing details. The flatness of E. Pellier's landscape, No. 129, does not seriously interfere with the beautiful effect of the silhouette the trees form against an evening sky. Dr. D'Arcy Power has in his "Autumn Woods" one of the best landscapes, full of atmosphere and excellent perspective. G. V. Robinson shows in his two contributions, Nos. 131 and 132, remarkably good observation and selection. But why does he affect the green mats for the grey prints? Hana Robison's portrait of a man, No. 133, is full of that free abandon which we don't often find in professional portraiture. Maurice Stewart deserves credit for both his exhibits. "The Sheriff" is quite a strong portrait of a rough-looking individual who ought to have been one of Franz Hals' models, and the "Whalers," No. 136, is a marine with excellent water and a rarely luminous sky. R. D. Stovel has managed to produce a novel and pleasing effect in "The Edge of the Woods," No. 137. George H. Scheer's refreshing picture, "Fleur de Lis," No. 138, full of the very atmosphere of spring, is such a good composition that the constructive faults of his other landscape, "Willows," are all the more obvious.

W. J. Street maintains his established position in "Plowing in Mendocino," the heads of the horses against the sky producing a telling effect. The sun seen through the fog in No. 141 appears so small that the realistic impression of the whole suffers somewhat. Each one of the three examples sent by Victor Stouffs is notable. In "The Thames at London" we look from some elevation down upon the river swarming with boats, and get a splendidly realistic effect of the smoky atmosphere of the big city. "The Swans" is a very decorative treatment of a difficult subject, more impressive in its simple arrangement than the rather spotty "Last Snow," No. 143. E. N. Sewell's portrait has no particular fault nor merit. W. A. Scott can certainly do better work than the two landscapes he shows, though the composition of "The Top of the Grade," No. 147, is worthy of praise. But his other print suffers from a most distressing sharpness that evenly pervades the whole picture. Charles E. Townsend's best contribution is a study of a child, No. 149, that is bound to appeal to all baby-lovers. Frances Thompson exhibits a quaint profile modeled in good firm outlines entitled "Innocence." Not so good is her picture with the unnecessarily French title, "La Fortune," No. 151. The pyramidal arrangement of lines are faulty. Easily overlooked is the little landscape by G. V. Taylor, in which many of the buildings are well handled. The two platinum prints sent by H. G. Vaughn, Nos. 153-154, are characteristic examples of the art of this San Francisco professional. Quite an ambitious composition is "The Approaching Storm," by R. E. Weeks; everything in it helps to suggest what the title indicates. There is something hesitating and undecided in the handling of his other contribution, which diminishes our interest considerably. The marine of J. H. G. Wolf, with the impressive silhouette of the sails, would be better if the water did not look

so much like cottonwool. Mrs. W. L. Wood's "Evening Drink," No. 158, though not free from faults in its arrangement, is sincerely frank and unposed. G. K. White's "Walls of the Old Mission," No. 159, is a not particularly novel variation of an old theme.

Mrs. Myra A. Wiggins is quite up to the mark of her usual excellence. She has a good portrait, cleverly and simply posed, and one of the genre pictures, "Cleaning Brass," No. 161, in which she is hardly excelled by any one. It is a most satisfactory print. The "Child at Play" cannot be considered a perfect composition, but it fully expresses the charm of babyhood. George Wilcox has a display of seven prints, all portraits. In some of them, Nos. 163 and 168, the lack of modeling is rather apparent; in "Miss T.," No. 169, the pose (especially the arm) is strangely wooden; and one, the head of a young girl, No. 167, is badly placed. But the other pictures are decidedly good, especially the strong head of Joaquin Miller, modeled with good preservation of all the values. The portrait of Kocian is a very characteristic pose. A. Wieland's Venetian landscape has good water, with a skillfully placed boat in the foreground. Quite a conspicuous exhibit of good promise are the five large gum prints by Walter Zimmerman. The "Breton Shell Gatherers," No. 175, in a pose somewhat reminiscent of the "Angelus," is a striking composition and shows remarkable manipulative skill. Equally good is his street scene, No. 171, with its well placed figures. "On Lake Lugano," a print of excellent tone, is defective in its construction, and the square dark and light masses do not hold well together. Why is No. 172, a portrait called "Beatrice (Rembrandt Effect)"? It seems to me that the name of Rembrandt ought to be used with a little more discretion.

EDITOR'S NOTE—Dr. Arnold Genthe, being Chairman of the Selection Committee, deemed it proper to refrain from entering any of his own work in the Salon this year.

Helpful Criticism

By James Thomson.

By the praise and flattery of our friends and the criticism of the incompetent, the best of us may be lulled into a condition of perfect content with ourselves and satisfaction with our performances, a condition that may prove detrimental to our future advancement no matter what particular line of human endeavor claims our talents and attention. That which is pleasing in art to the multitude is likely to prove unbearable to cultivated tastes. For this reason one should pay but scant attention to the opinions of the uninitiated, especially those who are so kind as to pass in review our photographic products.

We are doubtless all familiar with those well meaning people who tell us of the beautiful photographs Mr. A. turns out. Their confidence in their own qualifications to judge is likely to be in inverse ratio to their knowledge of the subject. Clear pictures with extreme contrast, of microscopic fineness of detail, is what they commend. Atmosphere in a picture is something they never ask for, a quality they never heard of and doubtless never noticed in nature, although it is there and we ought to have some of it in land and sea scapes.

Then there are our friends who *do* know a good picture when they see it but from certain weaknesses of character withhold praise where deserved and stretch

a point in seeking defects. Such individuals reserve appreciation for their own products. I have in my mind at this moment such a person, and I can say with truth that I have never heard him accord generous praise to anything accomplished by others, although he never tires of pointing to his own supposed excellence. I wish him all joy in his self-delusion. Leaving this class we come to consider those who pose as authorities and to whom we may look when we sincerely desire to know our short-comings. Some there are who know more than we and in order to perfect ourselves and attain their standard we are willing to refer our work to them for review. To be of help such a one should possess a judicial temper, and in addition should have superior knowledge; otherwise his decisions would be valueless. He should not permit his own prejudices to color his judgment. "Criticism implies scrutiny and judgment for and against." "A critic ought justly to weigh the merits and demerits, but of the two his office is rather to blame than to praise." This is the definition of an authority, Crabb in his "English Synonyms."

When I took to photography as a pastime, among the first things I did was to subscribe for a magazine devoted to the interests of the amateur. In that publication there was a department of criticism. But it seemed to me that the critic, although possessing undoubted knowledge of photographic technique, lacked art training, and was too eager to humiliate and score a point at the expense of the novice having the temerity to submit his "cherished gems" for criticism. It finally dawned upon me that such criticism carried but little weight, being nothing more than the opinion of one man and but too prone to degenerate into impertinent fault finding,—a man who liked certain things and had no patience with those who differed in their likes. Offensive criticism may sometimes do good, but if it does, it is only through arousing antagonism and indignation, inspiring a determination to prove the critic in the wrong, as in the case of Lord Byron and his Scotch reviewers.

Every serious worker in our craft desiring to advance requires criticism by some one. A man becomes so accustomed to his own work that it is impossible to judge it impartially. It is here then that the opinion of the competent critic can be of value. The truth may be unpalatable but if it be the truth it is for our good that we should realize it. Not many will object to it unless rendered in an offensive manner. There is not much call these days for record of fact pictures in our exhibitions or magazines. We want to produce something with our tools of trade, that the eye will return to again and again, and each time find fresh food for contemplation, and with renewed pleasure.

Such is indeed a picture worth possessing regardless of how the negative looks that made it possible. It should then be our endeavor to learn to produce work such as this, and we cannot do it by forming mutual admiration societies of one or more. It will be possible only by deep study and roughing it in the field of hard knocks, in hearing the truth however unwelcome.

While abusive criticism is to be condemned rather let us have it than colorless dealing in generalities. The multitude ridicules often that which has true merit—merit that is quite apparent to the few "who understand." Let us then be certain of the master at whose feet we choose to worship. It is hard to teach old dogs new tricks, and we may easily, from false teaching, acquire ideas which we may find difficult to disabuse ourselves of in days when we learn better.

The Third Annual Convention of the Photographers' Association of the Pacific Northwest

A Complete Report of its Proceedings with some of the Leading Pictures, and Portraits of the New Officers

The Third Annual Convention of the Photographers' Association of the Pacific Northwest was called to order by President Charles Butterworth at 2:30 p. m. Wednesday, September 23, 1903, at Armory hall, Salem, Oregon. The forenoon had been devoted to an informal gathering of members, payment of dues, final arrangement of exhibits, and a generous distribution of the "convention hand" on

A CONVENTION GROUP

the part of the officers and manufacturers' representatives present. In the absence of the mayor, Judge N. J. Judah welcomed the photographers to Salem and extended to them the unlimited freedom of the city. In his response President Butterworth informed the judge that the photographers were a pretty lively tribe and that a "friend at court" would be greatly appreciated.

The roll call of officers showed but two absentees, J. L. Phelps, vice-president, and J. Savanah, state vice-president for British Columbia. Communications were read from each of these gentlemen explaining their unavoidable absence, and regretting their inability to meet with their fellow workers this year.

The report of the secretary-treasurer was read, and showed the association to be in excellent financial condition. The success of the convention must be largely attributed to this official. It was shown that two thousand four hundred and fifty-six pieces of first-class mail matter had been sent to the photographers during the past year, that the elaborate program had not only paid for itself, but had left a balance of $27.00 to its credit, and that the present meeting would adjourn with not less than two hundred and sixty-five dollars cash in bank with all the old bills and the expenses of the convention paid in full. This will of course give the association a much needed working fund for the next year.

AN OUTDOOR GROUP BY H. C. MYERS, BOISE, IDAHO

The committee on buttons which was composed of Milton Loryea and Charles Butterworth reported progress and were instructed to investigate and purchase a sufficient supply of whatever style of button their judgment might suggest.

A. L. Jackson, J. C. S. Aune, and O. M. Hofstaeter were appointed judges in the foreign competition class.

L. W. Seely, J. C. S. Aune, Miss Sue Dorris, J. W. Tollman and J. G. Crawford were appointed as a nominating committee and requested by the chairman to submit their report to the association at 9:30 a. m., September 24th.

Communications were read from J. A. Ockerson, Chief of the Department of Liberal Arts, St. Louis Exposition. Colonel Ockerson's letter instructed the association as to the best way to prepare and forward their exhibit to the St. Louis Exposition. A communication from J. M. Bandtel was read setting forth the proposition of the State Association holding the convention every other year and meeting with the National Association in the intervening year. These matters were discussed but positive action postponed.

At 8 p. m. the evening meeting was called to order by the president and a motion made and carried to postpone all business until the following day, a theater party being the attraction for the evening.

SEPTEMBER 24th

The convention was called to order at 9:30 a. m., and the nominating committee was requested to hand in its report, and the election of officers for the coming year was declared in order.

The following board was nominated and unanimously elected: president, Milton Loryea, Spokane, Washington; vice-president, George Braas, Seattle, Washington; secretary and treasurer, H. D. Trover, Salem, Oregon; state vice-president of Washington, O. W. Pautzke, Ellensburg; state vice-president of Idaho, C. F. Stamper, Boise; state vice-president of Montana, J. W. Britain of Kalispell; state vice-president of Oregon, Miss Sue Dorris, Eugene; state vice-president of British Columbia, Howard H. King of Vancouver.

Speeches were demanded of the new officers and each responded with many assurances of continued efforts toward the success of the association.

The committee on foreign exhibits reported the following prize winners: Stephenson & Co., Atlanta, Georgia, gold medal; Morrisson, Chicago, Illinois, silver medal; T. J. Proctor, Huntington, West Virginia, diploma; Otto Boyè, San Francisco, California, honorable mention.

A demonstration on Aristo Platino was given by Mr. Ira H. Latour, who held his audience until the noon hour. At 1:30 p. m. the association met at the studio of H. D. Trover, where the School of Photography began its work in earnest. Demonstrations under the skylight were given by Mr. A. L. Jackson, Mr. H. W. Oliver of the M. A. Seed Dry Plate Company, Mr. Milton Loryea, Mr. H. D. Trover, Charles Butterworth, O. M. Hofstaeter and E. W. Moore. Many new wrinkles in posing and lighting were explained for the benefit of the visiting photographers, and this class of work proved so satisfactory that it was decided to continue the meetings of the School of Photography each day during the balance of the convention week. At 4 P. M. a baseball game between the professional photographers and the manufacturers' representatives and demonstrators kept the crowd in an uproar for two hours. The contest was wild and furious to an extreme, and Umpire Rogers was forced to protect himself with a baseball bat on several occasions when his decisions did not meet with the approval of the contestants. It would be difficult to state just what the score was. Miss Churchley of Portland, who was in charge of the tally sheet, said that she was afraid that the photographers had the best of it by some thirteen runs; the manufacturers, however, insisted that the young lady had allowed herself to be prejudiced and that in fairness the result should be considered a draw.

At 8 P. M. Mr. F. K. Hart of the Eastman Kodak Company gave a demonstration on the making of bromide enlargements. Mr. Hart was assisted by Mr. C. H. Ruffner, and the undivided attention given these gentlemen indicated a deep interest in the improved handling of bromides. At the close of this demonstration a business meeting was called to order by President Butterworth, and nominations for the next place of meeting were declared in order: Portland, Seattle, Tacoma, and Spokane were placed in nomination. Many speeches were made in behalf of

THE NEW OFFICERS OF THE PHOTOGRAPHERS' ASSOCIATION OF THE PACIFIC NORTHWEST

President
MILTON LORYEA

Vice-President
GEORGE BRAAS

Secretary-Treasurer
H. D. TROVER

State Vice-Pres. of Oregon
MISS SUE DORRIS

State Vice-Pres. of Washington
O. W. PAUTZKE

State Vice-Pres. of Montana
J. W. BRITAIN

State Vice-President of Idaho
C. F. STAMPER

State Vice-President of British Columbia
HOWARD H. KING

the different cities. It was decided that as the convention would undoubtedly be held in Portland during the Lewis and Clark Exposition in 1905 it would not be advisable to meet there next year. Spokane was objected to on account of its geographical position. Seattle would have been the proper place for the next meeting of the association, and but for the unaccountable and deplorable attitude assumed toward the association by the Seattle photographers this city would have undoubtedly been honored with the convention. Two ballots were taken on this question as a number of the members were in favor of going to Seattle in spite of the indifferent attitude of the fraternity there. On the second ballot Tacoma was declared to be the choice of the convention.

A committee was appointed to select photographs from the display on the walls to be sent to the convention of the Photographers' Association of California in San Francisco, it being further agreed that this same exhibit should be forwarded to the National Association for their next convention, and from there to the St. Louis World's Fair. It was also agreed that the photographer should be allowed to substitute any picture that he might desire for any of his work that might be selected by this committee before the collection was submitted to the World's Fair jury. On this committee were appointed J. T. Bertrand, Will Lussier and H. W. Oliver. The photographers were advised that substitute prints should be in the hands of the secretary of the association not later than December 15th, 1903.

Charles Y. Lamb of Portland gave an interesting talk on retouching, and in response to numerous requests gave a very humorous recitation which was well received by his audience.

SEPTEMBER 25th

The morning session opened with a flashlight demonstration by C. E. Barclay, and at the close of his work President Butterworth called the meeting to order stating that there was very serious business to come before the house. He then permitted Mr. J. W. Tollman the floor and Mr. Tollman spoke as follows:

"Mr. President, Ladies and Gentlemen: There comes a time in every man's life when he is confronted with some unpleasant duty that must be performed, and I deeply regret to state that it is my unpleasant task to bring to your attention a matter that I do not feel can be longer overlooked by the members of this association. Some of you will undoubtedly be surprised at my action in this matter, but after long and careful consideration I have decided to bring one man to time. Milton Loryea, past secretary-treasurer of this association, it is my painful duty to pass sentence on you. The association has selected me to prove to you that we fully appreciate what you have done for the organization; you have shown great thoughtfulness in the management of its affairs; you have looked ahead, and studied hard to make the convention a success, and to attest our appreciation of your efforts in our behalf we take pleasure in presenting you with this cup which we trust will overflow with the good things of life for you and that you will receive it with the same fraternal feeling of good fellowship in which it is tendered you. May your friends and your wife help you blow the foam from the top of it many times."

Mr. Loryea: "Mr. Tollman, Fellow Members: When I gave my chair to President Butterworth a few moments ago I had for the moment forgotten the

FAMILY GROUP
by J. C. S. AUNE
PORTLAND, OREGON

PORTRAIT
by A. L. JACKSON
TACOMA, WASHINGTON

beautiful token of appreciation that was presented to him two years ago and was under the impression that he was the unfortunate scamp that was expected to appear at the bar of justice. This beautiful loving cup comes to me as a complete surprise, and I am at a loss to properly express my deep and sincere appreciation of the honor shown me. The success of our association has always been exceedingly dear to my heart and the splendid work that has been done at this meeting has shown me that any efforts that I may have made towards furthering the interests of this organization have not been a case of "loves labor lost." The cup that you have given me will always be full of memories of the good fellowship and kindly spirit of this gathering, and with the assistance of my wife and co-worker I promise that it shall be filled and drained many times to the future success of the Photographic Association of the Pacific Northwest. Once more I thank you."

A vote of thanks was extended to the Photographers' Association of California for the liberal display of pictures, and the secretary was instructed to write to the Californians expressing an appreciation of the spirit shown toward the association and asking that they favor the convention with a similar exhibit next year.

A vote of thanks was extended to Mr. Hart of the Eastman Kodak Co., Mr. Ira H. Latour and Mr. C. H. Ruffner of the General Aristo Co., to the California delegation for its kindly support and assistance, and to all the members who have given their aid in furthering the interests of this organization during the past year.

It was moved and seconded that the president appoint a committee to arrange for a delegation to visit the first convention of the Photographers' Association of California to be held in San Francisco on October 29th, 30th and 31st. E. W. Moore, Will Lussier and L. D. Hicks were selected to serve on this committee. The meeting adjourned and the balance of the forenoon was given over to a demonstration of platinum and carbon work by Charles Butterworth and H. D. Trover.

The School of Photography met at 2 P. M. in the studio of H. D. Trover, where Mr. Will Lussier of the Cramer Dry Plate Company gave a demonstration on difficult lighting. The members were so favorably impressed with his work and mode of instruction that they presented a petition to him at the close of the afternoon session requesting him to continue his work on the line of practical lighting and posing on the following day. This Mr. Lussier consented to do.

The photographers enjoyed a drive through the grounds of the state institutions at 4 o'clock and saw the sights of Salem generally. The members were the guests of Mr. and Mrs. H. D. Trover of Salem, and many expressions of appreciation and gratitude were heard of the thoughtfulness and charming hospitality of this couple.

Mr. Ira H. Latour of the General Aristo Company gave a demonstration on collodio carbon at 5 o'clock which kept the photographers interested until long past the dinner hour.

The final meeting of the association was called to order at 8:30 P. M. by President Butterworth who announced that the delegation appointed to visit the California convention would be composed of J. C. S. Aune, A. L. Jackson, E. W. Moore, A. D. Rogers, Milton Loryea, H. D. Trover, E. A. Lynn, J. W. Tollman, Miss Sue Dorris, A. G. Churchley, C. L. Clevenger, T. J. Cherrington and J. B. Hann. The unfinished business to come before the association was taken up with the communication from J. M. Bandtel; after considerable discussion it was decided that it would not be desirable to make any change in the present arrangements

SUNRISE ON MT. HOOD FROM FORT VANCOUVER, WASHINGTON BY J. A. MEISER

but that the association would continue to meet every year at a point selected by the members and independent of the National Association. It was moved and seconded that an invitation be extended to the Photographers' Association of California to meet with the Photographers' Association of the Pacific Northwest at Portland in 1905, and during the Lewis and Clark Exposition.

Five-minute talks from the members on the business side of photography came next, and addresses were made by A. G. Churchley, J. W. Tollman, E. A. Lynn, L. Cohen, A. Jensen, Miss Sue Dorris, A. L. Jackson, A. D. Rogers, C. E. Barclay, H. W. Oliver, L. D. Hicks and Will Lussier.

A. L. Jackson of Tacoma, the first president of the association, addressed the meeting, his subject being "The Art of Photography." Mr. Jackson advanced many new ideas in connection with his topic, assured the photographers that they did not fully appreciate their own ability, and drew many favorable comparisons between art as expressed through the medium of a lens and that as shown by use of brush and pencil. Mr. Jackson claimed that a photographer had more actual experience in posing, lighting and grouping in one week of ordinary work than the average artist would obtain in a life time. At the close of this exceedingly interesting address President Butterworth took up the subject and added many points of interest and value to the general line laid out by Mr. Jackson.

A rising vote of thanks was given the past officers of the association and to Mr. and Mrs. H. D. Trover of Salem for their constant and untiring efforts in behalf of the association. Mr. Trover probably had more difficulties to contend with than any of the officers have experienced heretofore, as labor was exceedingly

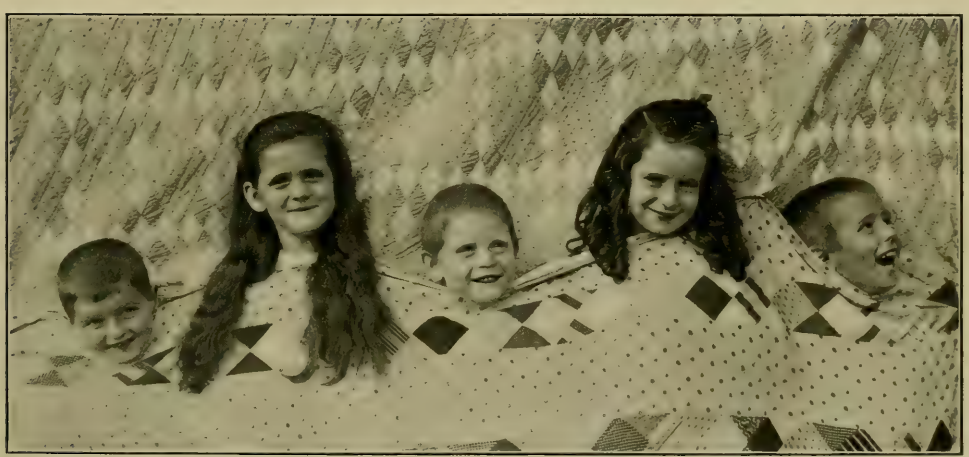
difficult to obtain and the burden of the general preparation fell almost solely on his shoulders.

It was moved and seconded that CAMERA CRAFT should continue as official organ of the association, and arrangements were made that six hundred copies of the convention number of that publication be purchased by the association and distributed among its members, and those interested in the association work.

LOVING CUP PRESENTED TO PRESIDENT LORYEA

The convention was in every way a success, there being over five hundred photographs displayed by the visiting photographers, and the manufacturers being even more satisfactorily represented than usual.

The following manufacturers were represented: G. Cramer Dry Plate Company, M. A. Seed Dry Plate Company, General Aristo Company, Eastman Kodak Company, A. M. Collins Mfg. Co., Stuparich Mfg. Co., Oregon Photo Stock Co., Blumauer-Frank Co., Woodward Clark & Co., Kirk, Geary & Co., Lusterine Mfg. Co., Skidmore & Co., CAMERA CRAFT Publishing Co.



A QUILTING PARTY

GENERAL CHAFFEE
by M. DEL MUE

Newspaper Artists' Exhibition

By Will Sparks

As an assertion of the importance of the work done by the artists engaged in newspaper illustration in San Francisco, a collection of their drawings and paintings was brought together and exhibited in the Maple Room of the Palace Hotel. The exhibition opened on Tuesday evening October 6th, and continued throughout the week. It was successful from nearly every point of view.

To form a proper estimate of this exhibition I found a most difficult task. To do it justice it was necessary to judge it from the standpoint of the men and women who did the work, and at the same time the artistic quality of the pictures had to be taken into consideration. To make a picture graphic and practical, and at the same time fill it with artistic beauty, is a performance every artist is not capable of. In newspaper work the latter quality is not of the first importance, although a work that has it in conjunction with the others will be sure to take first rank.

THE COACH BY LANGGUTH

MOONLIGHT BY H. G. PETER

During the four days of the exhibition there were over a thousand pictures hung. On the first night the catalogue contained 853 titles, but a large number were sold and replaced by others to keep the exhibition full. Forty-nine artists contributed work, and included the men from all the newspapers and magazines in the city. Following are their names and the publications with which they are connected: Harry E. Warren, *Call;* L. Maynard Dixon, *Sunset;* M. W. Newberry, *Examiner;* J. Kahler, *Bulletin;* Theo. Langguth, *Chronicle;* W. A. Coulter, *Call;* Bert A. Igoe, *Examiner;* Haig Patigian, *Bulletin;* H. M. Bunker, *Chronicle;* C. W. Rohrhand, *Call;* Rodney F. Thompson, *Call;* R. C. Springer, *Examiner;* T. A. Dorgan ("Tad"), *Bulletin;* Geo. E. Parmenter, *Call;* Oscar M. Bryn, *Call;* Laura E. Foster, *Bulletin;* Dan Sweeney, *Examiner;* J. M. Kelly, *Examiner;* Maurice Del Mué, *Call;* Stanley E. Armstrong, *Call;* Virgil Nahl, *Examiner;* John E. Sheridan, *Chronicle;* R. O. Yardley, *Bulletin;* S. Schuhl, *Call;* H. G. Peter, *Bulletin;* Henry Raleigh, *Examiner;* J. A. Cahill, *Call;* Marie Feiling, *Post;* W. H. Matthies, *Examiner;* R. G. Russom, *Call;* Walter Francis, *Call;* Merle Johnson, *Examiner;* W. L. Cook, *Call;* Frederick W. Small, *Chronicle;* Stanley Clisby Arthur, *California Ladies' Magazine;* William Stevens, *Examiner;* G. A. Bronstrup, *Call;* Charles S. Donnelly, *Examiner;* J. W. Rennell, *Call;* W. T. V. K. Stenberg, *Examiner;* C. D. Pitchford, *Sunset;* Louis C. Pedler, *Chronicle;* C. M. Peter (Pete), *Wasp;* Charles P. Eager, *Chronicle;* Charles F. Miller, *Chronicle;* A. Fulton, *Bulletin;* Jack Rodgers, *Chronicle;* M. H. Harris, *Sunset,* and J. W. Cantrell, *Call.*

On entering the exhibition room the first impression was confusing and bewildering. There was a tangle of color everywhere. Black and white, pen and ink and water colors were hung side by side in a manner that detracted a great deal from much of the work. In this respect the work of the hanging committee left much to be desired. It was not until I had been around the rooms several times that I realized just how excellent the showing was. Taken as a whole the exhibition was one of which the artists have every reason to feel proud.

And such a variety of subjects as were treated. There was a picture of nearly every incident of modern life from a baptism to an execution, with the cartoonists and funny men providing the laughter

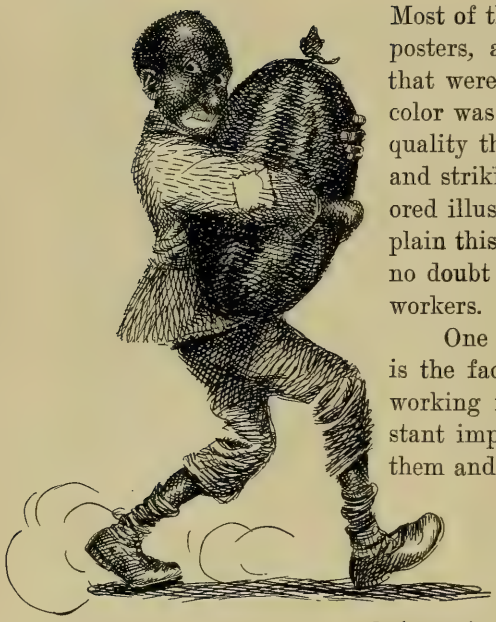
that is generally the accompaniment of the most serious affairs. There were also portraits of the best known people in the world, many of them drawn from life.

From a technical standpoint the work was of all grades. The best of it could not be surpassed anywhere. Some was worse than mediocre. The greater portion of the work was original, but there was much that was copy pure and simple and signed by the copyist in the most brazen manner. In newspaper work we all know that it is necessary to use "scrap," much as a writer uses the dictionary or the Encyclopedia Britannica, but that does not mean that one man has a right to bodily copy a picture of another and put his own name to it. This practice should be condemned by all artists interested in the dignity of their profession.

It would not be easy to get up an exhibition containing work that would more thoroughly represent the men than this one did. Every artist sent his best efforts and examples of the work in which he has gained distinction.

After careful consideration I concluded that the strongest part of the exhibition was drawing and the weakest color, with composition and design occupying a place somewhere in between. Some of the drawing was wonderfully strong.

THE DEBUTANTE BY ADONICA FULTON



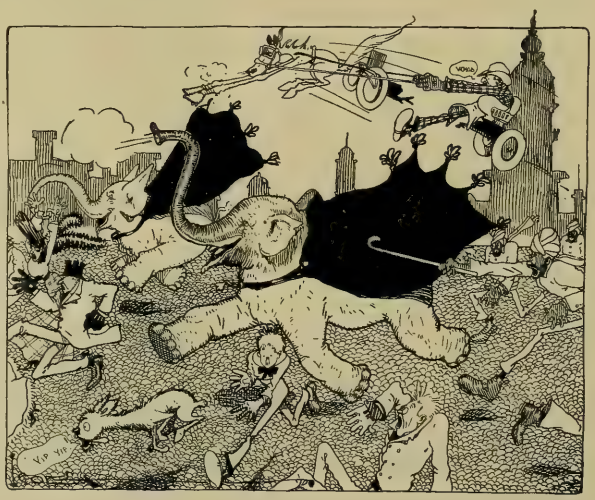
SIDE BY SIDE BY R. O. YARDLEY

Most of the color was woefully weak. There were many posters, ambitious efforts, well drawn and composed, that were colored without the slightest idea of why the color was put on. They did not even have that strange quality that some crude efforts have of being attractive and striking by being ugly. But there is not much colored illustration done in San Francisco, which may explain this deficiency on the part of the artists. The men no doubt have the ability, for many of them are strong workers.

One of the most hopeful aspects of the exhibition is the fact that every artist represented, who has been working five years or more, shows improvement—constant improvement. I have watched the work of all of them and am sure of myself when I say this.

L. Maynard Dixon is a man who from the first put himself in the van of the artistic movement in illustration. He has always made an effort to make his illustration paintings in black and white. For some years he has worked almost exclusively with western subjects. And he knows all about the great American desert and the people who live there, whether white, brown or red. He has made personal acquaintance with them as his work shows. Dixon has never been content to stop with the figure when illustrating his western subjects. If he put a man out on the desert alone he gave just as much attention to the desert as to the man. He has even painted the "alone" part of the picture as no other western illustrator has. Dixon's work has a completeness that is rare. His "Spirit of the West" is a masterful piece of illustration. This picture shows the vastness, the movement and the illimitable possibilities of our great western empire. It is deeply impressive and a splendid piece of drawing. In all Dixon exhibits thirty-three pictures, the most noticeable ones being: "A Cross in the Desert," "The Navajo Outcast," "The West," "Cowboy Training a Colt," and "A Desert Legend." All of these show study and thought, and the same quality goes through all the rest of his work. Dixon's exhibit is of the utmost importance, and speaks well for the future of western illustration.

Joseph Kahler, of the *Bulletin* staff, exhibits twenty-one drawings and paintings. His best work is found in his portraits. These are good likenesses and strong drawings and have always been so noted. Kahler's portraits always print



CIRCUS DAY BY BERT IGOE

well, a fact which is due to his great strength of line. In this respect his work is distinctive. His portrait of Pius X is a masterful piece of drawing. In addition to his newspaper work Kahler showed several dainty water colors, among them being one entitled "On the Creek," which was especially entitled to commendation.

Virgil Nahl, of the *Examiner,* came to the front with forty-one pictures. These were nearly all distinctive newspaper illustrations and showed a simplicity and strength of treatment above the ordinary. "Steerage Passengers" was a splendid piece of work, as was also "The Christmas Dinner" and the portrait of Cardinal Oreglia. "An Egyptian Night in the Hacienda Del Roza Verona" was as good a piece of newspaper illustrating as has appeared in this country. "On Parade" was a pretty decorative figure, well drawn and pleasingly colored.

BY MERLE JOHNSON

The Deep C Bass who's in the swim
Will let no Siren sing to him.
  The Mermaids smile, the Oysters stare,
  When he begins without the air:
"Rock-cod in thaw ke-radle of thaw deep."
The Lobster moans, the Suckers weep,
  The Shrimps seek death in salad dish;
  And no one listens but the Fish.

W. A. Coulter, the artist of the *Call* staff, who knows more about ships than anybody, made a splendid showing. His work was nearly all of the legitimate newspaper style. In fact most of his pictures are old friends that we have seen years ago in the columns of the *Call.* Coulter knows how to draw a ship so that sailors will say that it is right. He doesn't put the main yard where the binnacle ought

THE COAL PASSER
by J. W. RENNELL

FOOTBALL POSTER
by JOHN E. SHERIDAN

to be, nor vice versa. Coulter also draws in his own style so that his pictures are distinctive and known all over the country. Among his most important pictures may be mentioned "Brigantine of the Seventeenth Century," "Sailing in the Golden Gate," "Arrival California Volunteers," "In a Strong Nor'wester," and "Passing a Burning Hulk."

THE PIPER BY F. W. SMALL

Max Newberry, of the *Examiner,* showed a wide range of subjects treated in a strong and simple manner. His work was in all medium and showed much versatility in handling. Newberry's style is his own, and he seems to have a good conception of the character of theatrical people, as is shown by his drawings of actors and actresses. His "Matinee Girl" was very good, and "Politics" is worthy of great praise. "Little Italy" was a nice piece of drawing. "Girl in White" was pleasing and up to the standard of the other thirty-five contributed by this versatile artist.

When out among the spheres on that great day,
My loosened spirit leaps—I shall be free

by LAURA E. FOSTER

Theo. Langguth, of the *Chronicle,* is another artist who covers a wide range of subjects. Nearly all of his work is a distinctively newspaper style. The greater portion is in pen and ink, although there are a few in other mediums. Langguth's subjects explain their titles, such as "Shipwrecked Crew of the Clipper Hornet," "Cable on Midway Island," "Mermaid Ashore," "Dredger, Panama Canal," etc.

Harry E. Warren, of the *Call* staff, sent four portrait cartoons of well known people done in his own graphic style.

BUCKING BRONCO BY RODNEY THOMSON

Bert Igoe, of the *Examiner,* sent a long bunch of "Chimmie Fadden" in his peculiar style. He had thirty in all, some of them colored in a funny style, but all attractive and interesting. These included the well known drawings, "Hobo Days," "Dog Society," "The Burial of Fido," and "Jail Birds," etc.

G. A. Bronstrup, of the *Call,* sent only seven. But they were all in Bronstrup's style. You could have told them anywhere. His "Two 's Company; Three 's a Crowd," attracted a great deal of attention, as it deserved.

MOONLIGHT BY HAIG PATIGIAN

THE DERELICT BY W. FRANCIS

PORTRAIT OF MISS M.
by VIRGIL NAHL

THE SOUBRETTE BY R. G. RUSSOM

"Tad" A. Dorgan, of the *Bulletin,* has seventeen of his extravagances that seeem so weird and yet so life like. It seems as though "Tad" could not draw a picture so that it would not look right, no matter how crazy he made it.

J. A. Cahill, of the *Call,* sent nineteen drawings of all kinds. All of these are good strong pictures, quite distinctive in style and broad in treatment. Cahill is one of the men who can draw anything. His pictures of events are particularly good. His "Night Mail" showing a train wreck is a powerful piece of work. The drawing is good and the effect all that the subject calls for. The poster "Easter Girl" shows a strong grasp of such subjects. His Chinese children are very characteristic of what they ought to be.

R. G. Russom, of the *Call,* had a short list—only eight—but they were all highly interesting. Most of them were fanciful little things, particularly his "Pandora." "Evening" was a pleasing little study with a great deal of sentiment.

W. Lyle Cook, of the *Call,* made quite an impression with a large number of colored drawings. Of course we must forgive the suggestion of Nicholsen which they gave us because there is considerable originality in them. One of his best pieces of work is entitled "English Sportsman." He also had a "Study of a Head" which looked like a drawing from life. At any rate it was one of the best drawings in the show. His "Cat Poster," was very creditable.

M. Del Mué, of the *Call* went outside of the realm of newspaper work and sent several clever color effects. One of his best was a "Suggestion for a Poster."

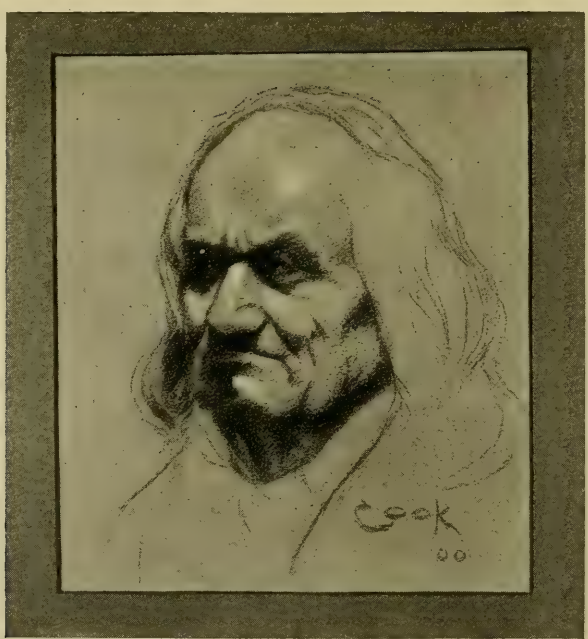
H. G. Peter, of the *Bulletin,* had fifteen illustrations of various grades of merit. Of these "Lady and Swan" and "Nature's Mirror" seemed about the best.

NEGLIGEE BY J. A. CAHILL

THE VAQUERO BY G. A. BRONSTRUP

W. Francis, of the *Call,* sent seven, one or two of them being highly creditable. His "The Derelict" was practically a copy.

R. O. Yardley, of the *Bulletin,* showed a long list, most of them being marines. "Outward Bound" was particularly good.



STUDY IN CHARCOAL BY W. LYLE COOK

Marie Feiling, of the *Post,* sent about twenty pictures, embracing every phase of newspaper work. "A Real American" would attract attention anywhere.

Laura E. Foster, of the *Bulletin,* showed thirty pictures. The best of these were the dainty pen and ink drawings. "At the Governor's Inaugural Ball" was a splendid piece of drawing. "A Belle from the Coast" showed a strong grasp of character.

Adonica Fulton, of the *Bulletin,* showed twenty drawings with a wide range of subject and treatment. Her "French Poster," was strong and well suited to what it was intended for.

J. W. Rennell, of the *Call,* showed twenty-five drawings, most of them being marines and Indian pictures. His "Pottery Vender" had considerable strength.

John E. Sheridan, of the *Chronicle,* had nineteen drawings covering a wide field. "In Suspense" was particularly good.

Haig Patigian, of the *Bulletin,* had one of the largest lists in the exhibition. He had forty-one drawings and water colors. Most of his drawings were of the usual routine newspaper work and made a good impression. His water color, "Chinese Huts in Monterey," was a good bit of study.

F. W. Smith, of the *Chronicle,* made a good display. He had ten drawings all highly creditable. "Union Square at Sunset" was a fine piece of decorative work. His "Marine Poster" attracted considerable attention.

H. M. Bunker, of the *Chronicle,* sent twenty drawings covering almost the whole newspaper field. His work is strong and deserving of credit. "The Mill on the Moor" produced a good impression.

George E. Parmenter, of the *Call,* had a long list, most of them being drawings in the usual newspaper work.

Charles P. Eager, of the *Chronicle,* made one of the most interesting displays. His was all newspaper work of the best quality. It included the usual range of pen and ink work and all the different events. The color drawings for the comic "Wise Gazabe," that appeared in the *Chronicle,* were particularly interesting.

John M. Kelly, of the *Examiner,* sent five drawings showing the various styles of "girl."

Charles S. Donnelly, of the *Examiner,* sent four drawings.

Work was also sent in by Mrs. Stevens, of the *Examiner;* Charles F. Miller, *Chronicle;* C. D. Pitchford, *Sunset;* R. C. Springer, *Examiner;* Oscar M. Bryn, *Call;* S. Schuhl, *Call;* Stanley Clisby Arthur, *California Ladies' Magazine;* C. M. Peter, *Wasp;* W. T. V. K. Stenberg, *Examiner;* M. H. Harris, *Sunset;* Dan Sweeney, *Examiner;* Stanley E. Armstrong, *Call,* and Henry Raleigh, of the *Examiner.*

J. W. Cantrell, one of the oldest newspaper artists in the city, completely forsook illustration and turned in a batch of seventeen oil paintings, several of which found ready purchasers.

Last Call to Professional Photographers of California Convention

F. A. WEBSTER
The first President of the Photographers' Association of California

D. F. MULLENDER
Secretary of the Photographers' Association of California and one of the leading workers in the coming convention.

The First Annual Convention of the Photographers' Association of California will soon pass into history and the man whose work is "good enough" will have stayed at home and missed a good time, while the enterprising man will have gathered from the representative work exhibited, some thought or idea that will be of great value to him, and thus the old adage—"to him that hath shall be given" —will again be exemplified.

I am glad to be able to announce that the proprietors of San Francisco and Oakland have agreed to close their studios on the last day of the Convention—October 31st—besides attending and permitting their employees to attend, as much as possible during the entire three days, that the greatest possible good may be derived from the lectures, demonstrations and exhibition.

Get in line and do likewise.

We are fortunately able to secure many of the best photographs shown at the Indianapolis Convention; with an exhibit of fifty-two of the finest pictures from the Northwest Association already on hand, combined with the best products of every studio in California, will present a most complete exhibit of modern professional photography.

Come.

F. A. WEBSTER, *President.*

Some of the pictures to be exhibited by San Francisco photographers at the first Annual Convention of the Photographers' Association of California, October twenty-ninth, thirtieth and thirty-first, nineteen hundred and three

BOY WITH VELVET HAT
by ARNOLD GENTHE

STUDY IN PLATINUM
by VAUGHAN & KEITH

THEATRICAL STUDY
by BUSHNELL

PURITY
by C. H. ANDERSON
ELITE STUDIO
Copyright, 1903

PORTRAIT OF A GIRL
by STANFORD STUDIO

J. C. STUBBS
by TABER

PORTRAIT OF MISS J.
by GEORGE WILCOX

CAMERA CRAFT

ISSUED MONTHLY BY

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Edited by FAYETTE J. CLUTE

VOL. VII. SAN FRANCISCO, CALIFORNIA, NOVEMBER, 1903. NO. 6

How to Improve the Salon

While the Third San Francisco Salon has attracted considerable attention in art circles, it is deficient in the number of prints exhibited, and in the presence of anything like a strong western representation. The small number of prints exhibited is not altogether due to the stringency of the judges, for about one print in five, a reasonable average, was admitted. The fault lies in the fact that but little publicity was given to the exhibition.

The artists do not have to advertise their exhibitions. The number of exhibitors is small and confined to a limited area. Each artist knows the date and location of every exhibition and his preparations are made accordingly. It is a matter of business with him, for exhibitions mean sales.

Not so with the photographers. There are a hundred camera workers to one artist, and while nearly every artist has the ability to turn out an acceptable exhibition picture, few photographers can produce work that will pass a modern photographic jury. Again the photographer exhibits purely for glory and cannot be expected to keep in mind the dates and places of the various photographic exhibitions as he does his business engagements.

Hence, to obtain a liberal representation from the photographers it is necessary to interest them in the success of the exhibition long before it is time to send in pictures.

Immediately after the close of this exhibition the committee for the fourth salon should be appointed and work should be commenced at once. The photographic press should be bombarded with literature and pictures. Printed matter announcing the exhibition should be issued six months before the date of opening, the local press should be interested and letters should be written to every prominent photographer urging the preparation of an exhibit. In short, work should never cease, the salon is a permanent institution and should be so regarded.

Close One Day

Last month CAMERA CRAFT urged the professional photographers and photographic dealers of San Francisco, Berkeley, Oakland and Alameda to close one day during the progress of the first Convention of the Photographers' Association

of California so that every one engaged in the photographic business could derive the benefits of the educational features of the exhibition.

The movement is a popular one and in its report of the Convention next month CAMERA CRAFT will publish the names of the firms who were wide awake enough to obtain all of the benefit of the show.

Acetonesulphite in the Clearing Bath

A clearing bath is always necessary after developing either plates or papers with the popular metol-hydroquinone or "M. Q." solution, as a white sediment is deposited upon the film. The clearing bath is generally nowadays mixed with the hypo bath—that is, an "acid fixing solution" is employed. Such a solution may be prepared in a variety of ways.

For example, an acid may be added to the usual hypo solution. This at once produces both sulphur (as a white milkiness or sediment) and sulphureted hydrogen—a gas that is unpleasant and deleterious at the same time. Sulphurous acid added to a solution of hypo gives the best bath that can be obtained by direct addition: the admixture with the fixing solution of a sodium sulphite and sulphuric acid, previously filtered, is perhaps the method most generally adopted, and this not infrequently gives rise to yellow staining of gaslight and bromide prints. All these disadvantages are obviated by mixing a very small quantity of acetonesulphite with the ordinary 20 or 25 per cent hypo bath.

It is my own practice to throw a little dry acetonesulphite into the fixing bath just before use; the fixing bath will then be found to keep clear and colorless for several days, and fixation is not retarded in the way resulting from admixture of sulphurous acid. The acetonesulphite removes sediment from the plates, and gives pure whites on both plates and paper. Its great convenience here lies in the fact that the quantity thrown in the bath does not matter at all, and I think that many amateur photographers, as well as scientific ones, can appreciate a haphazard operation which never goes wrong!

Negatives bleached in the mercury bath for intensification may be reblackened by various means. Ten per cent solutions of ammonia or sodium sulphite have in later days replaced the earlier method of redevelopment. A good method of intensification, given in the *Bulletin* of the Paris Photo Club, in which acetonesulphite has been used for blackening with considerable success, is as follows:

Bleach the thoroughly washed negative in a solution of

Water	4 ounces
Mercuric chloride	30 grains
Potassium bromide	75 grains

When quite white, the plate is well washed for about ten minutes and then reblackened in a 2 per cent solution of acetonesulphite.

A Photographic Digest

By Dr. H. D'Arcy Power

Orthochromatic Photography Without Screens

In an article in *Photography*, dealing with the orthochromatic properties of the plates in the English market, Mr. T. Thorne Baker makes some statements which are worthy of careful recollection. He says:

"If two ordinary plates be sensitized, one, which we will call A, with Pluto-black, the other one B, with erythrosine, we shall have now two orthochromatic plates, A being chiefly sensitive to red, orange and blue, slightly to yellow and green, and B very sensitive to greenish-yellow, and blue, scarcely at all to orange and red. Here, then, are two plates distinctly different in color sensitiveness, but both are "orthochromatic"; thus obviously it is not possible to get the same rendering of the same subject with each plate, unless an appropriate filter be used with each.

"The plates upon the market which are the most suitable for working without a screen are certain brands which, when the spectrum is exposed upon them, give a very vivid or strong band for yellow or yellowish-green. Most of the color-sensitized plates produced by manufacturers give, when a photograph of the spectrum is taken upon them, a darker band for yellow or yellowish-green than any other color. But it must not be assumed from this that they will represent yellows lighter in the print than blues, when no screen is used. The ratio of visual intensity of spectrum blue to spectrum yellow is pretty well that of dark brown to white—the spectrum blue and bluish-violet is so dark. In nature, however, we should class sky-blue and perhaps lemon-yellow together as being of about similar visual intensity, and I think I am correct in saying that no orthochromatic plate that was ever made would give these two of the same density in a negative, if it were possible to take them side by side. It is possible to sensitize a plate with chinoline red and acridine yellow so that after an average exposure to the spectrum only red, orange and yellow appear on the negative. Yet if the same plate be exposed to a picture containing some blue cornflowers, yellow buttercups and red roses, on the resulting print one would get the cornflowers almost white, the buttercups gray (dark), and the roses just as black as if an ordinary plate had been used.

It has been shown that there are relative sensibilities to different parts of the spectrum of five varieties of plates; the fifth has yet to be found! I must give Dr. Schleussner his due, and say that his plate is the one that comes nearest the mark—that, at any rate is my own experience. But on the other hand, I still emphasize the fact that every plate wants a screen when the subject contains blues and yellows together."

How to Focus for Maximum Depth of Field

When using a camera, we are often desirous of focusing so as to obtain a maximum depth of field, and we therefore give below a table showing what point to focus on so as to obtain this maximum.

If we focus on any of the distances given in the table, we shall find that half that distance is the nearest point in focus, and that any distance beyond the nearest point in focus is also in focus.

The stops for which the table is constructed are those usually marked on lenses of British make, and the table can be used for any lens whose stops are marked in the customary manner with the ratio values.

The table is somewhat similar to that constructed by the illustrious Sir D. Salomons, of electric fame; but as neither his table nor that of Dr. J. J. Higgins give stops f/4, f/32, nor the intermediate stops, f/5.65, f/11.313, and f/22.627, we think the table will prove to be of considerable value, as these stops are in constant use by photographers.

In fitting a lens to a hand camera, the lens should be fixed for the distance given under the heading in the table of the largest stop the lens has, although it is still better if the lens is not at a fixed focus, but is fitted with a rack attachment for focusing. In the latter case we can always put the lens at the fixed

focus distance for general use, and bring the racking movement into use whenever it is required for near objects.

Table of Distances on which to focus, so that all objects beyond half that distance are in focus. Disc of confusion taken as 1-100th of an inch. Distances given in feet:

Focus of Lens in Inches	Ratio Values Marked on Stops F/4 | F/5·6 | F/8 | F/11·3 | F/16 | F/22·6 | F/32 — Distances on which to Focus for Maximum Depth of Field all beyond half these Distances being in Focus						
ins.	ft.	ft.	ft.	ft.	ft.	ft.	ft.
3	19	13	9	7	5	4	3
4	33	24	17	12	8	6	5
4.5	42	30	21	15	11	8	6
5	52	37	26	19	13	10	7
5.5	63	45	32	22	16	11	8
6	75	53	38	27	19	13	10
6.5	88	62	44	31	22	16	11
7	102	72	51	36	26	18	13
8	133	94	67	47	33	24	17
9	169	119	94	60	47	30	24
10	208	147	104	74	52	37	27

With lenses such as the Unar lens of Zeiss it is necessary for accurate work to focus with the stop one will use for the exposure, but with symmetrical combinations such as the two-foci Protar lens of Zeiss, it is not necessary.—*English Amateur Photographer.*

Light in Portraiture

Those engaged in portraiture, both professionals and amateurs, should carefully read Mr. Howard Farmer's lecture, published in the July Fourth number of the *British Journal of Photography.* The author first attacks the problem of uncertainty in the results of photographic lighting when the face is concerned. One must read the paper in extenso to appreciate how many factors enter into this problem. The most important of these is stated to be the variable quality of sunlight itself. The best solution of this difficulty, says Mr. Farmer, is to substitute electricity for daylight, and the right kind of electricity is now available. Not only have we the Hewitt Mercury Vapor lamp with six times the actinic power of the ordinary arc light, but the Westminster Engineering Company has produced a special lamp for portraiture with thirty times the average actinism. This is no theory but is now being practically exemplified in the studio of Miss A. Garston in London. "Suppose," says Mr. Farmer, "you take a fairly large interior, build inside, and illuminate by electrical means, a white or pink dome, large enough to construct beneath it an ordinary studio, complete with blinds and appliances, as used with the daylight studio. The dome to act as the skylight, but with constant illumination, and shape, glazing, diffuser, blinds, and other details to suit the individual worker. The position of the studio to be at the back of the house, on the pavement level, with a wide and open entrance through from the reception room. You now have a studio, which, in every useful respect is equal to daylight. You also have constant illumination, giving constant exposures and a constant relation in all parts of the image between luminousness and actinism. You have in addition the advantage of being independent of daylight, and can, like the photo engraver, work at any time which suits your own or your clients' convenience. You have also left the roof and the chimney stack and brought your camera to the most convenient place, level with the roadway.

Impressionism and the Fuzzy Print

The (English) *Amateur Photographer* recently published a criticism by a writer, evidently an artist, on the subject of "Impressionism in Photography." While I am not able to agree with all of the critic's deductions, there is enough solid truth in the article to demand the careful attention of the pictorial worker. "Impressionism," he says, "may be briefly defined as a strong representation of the essential features of a subject and comparative suppression of the unessential, this suppression amounting sometimes almost to obliteration. But this is not all. In addition to a large element of suppression, there must also be an equal element of emphasis in the important points, and in proportion to the extent to which the worker can introduce this power of emphasis, so will be his success in instantly conveying his impressions."

And this emphasis, easily obtainable by the draughtsman or the painter, cannot be obtained in photography by tricks of focusing; neither Dr. Emerson's method of sharp focusing on the main object with a large stop, nor the general diffusion practiced by some of the modern school. To the first the writer objects as follows:

"Assuming that the lens in use possessed a perfectly flat field, it follows that all objects at the same distance as the principal point focused are equally sharply defined, irre-

spective of the degree of importance that they possess, and the falling off in definition of other portions of the picture is not in any way regulated by their relative importance, but solely by their distance from the plane focused most crisply. If the field of the lens were curved, as in all the older types, the only difference would be that objects lying in a concave field instead of a plane would be equally sharp or blurred, as the case might be. The inherent weakness of this plan is that there is absolutely nothing to prevent details that the worker would most desire to suppress, from rivaling in prominence those intended to be the principal points of interest. The degree of self-assertiveness of the various portions of the subject was a purely mechanical arrangement, and not in any way under the control of the worker. A striking instance of this defect, and also of the fact that the deficiencies of ordinary photographic rendering that this method was intended to rectify, were thereby re-introduced in a more glaring form, was shown occasionally when the principal object was slightly out of focus, and the distance more so; unimportant detail in the foreground was rendered more distinctly than those parts to which it was most desired that attention should be directed, and the consequent aggressiveness of such detail was most distracting."

Concerning the second he says, with undoubted truth:

"The second objection is even more serious, and applies with equal force to all photographic pictures that attempt to attain pictorial quality by being blurred or out of focus. Putting the photographic image out of focus will not confer breadth or pictorial qualities if those qualities are non-existent in the subject and conditions; and, conversely, all the sharpness possible will not destroy the pictorial quality of the subject, though it may at times prevent that quality from being presented in its most attractive guise.

"This must not be regarded as an argument in favor of microscopic sharpness in all photographic work; it is simply desired to impress the fact that true quality is independent of the actual fineness of definition. It may be stated as an axiom that neither sharp definition nor the absence of it should be self-assertive in any picture; the degree of definition should be so suited to the size and general treatment that the observer should not be conscious of any attempt to make it specially fine or coarse.

"An insurmountable objection to an image being out of focus is the destruction of form and structure involved. This is not the same as absence of detailed representation of unimportant objects in a drawing or painting, but an actual substitution of a mechanically distorted image for correct form and outline. And there is nothing gained to compensate for this loss. If undesirable or strong lights and shadows exist where a broad gray mass would be more satisfactory, putting their image out of focus does not destroy them."

The solution offered is: "By exposing the plate when the conditions are most favorable for the effect desired—the only course that the true impressionist would ever adopt—and then when the negative is obtained, by judiciously controlling it in printing, the nearest approach to the ideal photograph will be obtained.

"Control in printing does not rob the work of any of its photographic character or attributes. It consists essentially in modifying lights and shades or tones, in strengthening or emphasizing some, and weakening or toning down others, and by this means softening aggressive features and giving breadth to the general effect, as well as assisting to secure concentration of interest. In attaining this result, form, outline, and character are all left unimpaired; the work is still in character essentially a photograph, and therein lies the value of such a method to photographic work."

The Amateur and His Troubles

By Fayette J. Clute

Fourth Annual Salon, Chicago

The indications are that the Fourth Annual Salon of the Chicago Society of Amateur Photographers, to be held at the Art Institute, Chicago, from December 29th, 1903, to January 24th, 1904, inclusive, will be a great success.

The officers and committee having charge of the Salon have reason to believe that a larger number of pictures will be hung than at any other previous Salon, and that the grade of work will be higher than heretofore exhibited. This is saying a great deal, because all of the Chicago Salons have been a decided success each year, showing an improvement in both number and quality of pictures hung.

A departure was made this year in the selection of a jury, in that it is wholly photographic. The names of the members of the jury of selection being a sufficient guarantee that the pictures submitted to its consideration will receive the most careful, painstaking and intelligent attention, and also an assurance that the standard of work required in order that the pictures submitted may enter the "select class" will not be below last year.

The loan collection of pictures of the Photo-Secession will be hung in the Salon, and it is being awaited with considerable interest.

Rock Crystal Glass

The wonderful development of the glass industry, which by reason of the labors of Dr. Abbe and his co-workers at Jena has given us the modern anastigmat, the apochromatic microscopic objective, and many other invaluable aids of science, was recently the subject of various papers read before the Fifth Congress of Applied Chemistry, in Germany. Amongst others, Dr. F. Mylins spoke on the recent introduction of pure quartz glass made from fused rock crystal. This has been rendered possible by recent improvements in the production of high temperatures, by the aid of electricity. At a temperature of 1350 degrees C. the mass softens, at 1500 degrees it becomes plastic, and at 1700 degrees fluid. Even then the working of it is a matter of great difficulty, and so severe is the labor of the glass-blower that he is not able to apply himself more than five hours a day to this labor.

To the chemist, apparatus made of this material is invaluable, inasmuch as it is proof against all ordinary acids, and is capable of withstanding the greatest changes of temperature, so that a flask made thereof may be heated to whiteness and then plunged into cold water without cracking. The *Polytechnic-Centralblatt*, to whose report I am indebted for this information, states that it is now possible to construct glass thermometers registering from 900 degrees to 1000 degrees C. As this glass, besides advantages in the refraction index, is distinguished by its perfect transparency to ultra-violet light, it would seem to offer great photographic as well as chemical advantages.

How Persulphate of Ammonium Reduces

This question has been the subject of much debate ever since this useful chemical was introduced. One group of workers declared that it attacked the dense high lights more than the shadows, whilst others averred it only acted equally on both. The question is now definitely settled by a method that allows of no error. Not long ago photomicrography confirmed the interference theory of the production of the Lippmann film; now another application of the same method shows us how the reducers reduce. In an article in the *British Journal of Photography*, Mr. J. I. Pigg states how this was done.

About Developing

I am perfectly willing to admit that the expert can get good negatives from exposures that are far from being correctly timed. I am also willing to admit that a good plate has an amount of latitude that makes hair-splitting as to the time of exposure, almost childish. At the same time, there is a certain strength of developer or rather a developer compounded with a certain proportion of all the components that is best suited to

each particular plate. That developer is the one that is best calculated to bring out to the best advantage the good chemical quality of that particular plate. The moment we alter the relative proportions of the components of our developer in order to correct over or under-exposure, we sacrifice in a greater or less degree that fine chemical quality which our plate-maker strives so hard to give us. Another thing that works to our disadvantage when a change in the developer is made, is the change that is introduced at the same time in the behavior of our plate. There is not the same steady upbuilding of the various parts in their regular order and of course the final result is made more or less problematical. By all means learn to control the effects of over and under-exposure as much as possible, but do not depend upon the slight power thus obtained and think that you can give an exposure regardless of the one that should be given in justice to your plate and developer. You will find that a constant striving to attain uniformly correct timing, basing your estimates either on a good exposure meter or carefully made notes of previous exposures, will soon make you capable of developing the major portion of your plates without more than occasional recourse to your manipulation of the developer that you so fondly believe is capable of doing so much for you.

Mountants

Now that so many amateurs are busy printing from their holiday negatives, a few notes on really useful and suitable mounting substances may not come amiss.

Most amateurs who take a kodak or hand-camera of any kind with them upon their travels want mainly a record of the places visited, and therefore like to print upon P.O.P., and they often wish to preserve these records by mounting them on cards or in an album.

It is astonishing how they still stick to glossy pictures, and the number of papers of the printing-out class, self-toning and otherwise, that appear on the market, testify to the great demand.

If it is desired to mount prints with a gloss, the ordinary starch paste will not do, and for these cases a gelatine or shellac mountant is required. First, a starch paste for gelatine or albumen prints may be made by taking a teaspoonful of powdered starch, adding a teaspoonful of warm water and rubbing well into a cream. From a kettle of boiling water pour in a thin stream, stirring the while. As soon as the mixture turns clear, stop pouring and continue stirring a little. Put aside to cool and set, or, if the paste is to be kept some time, add a drop of carbolic acid.

A gelatine spirit and glycerine mountant is made by soaking seven parts of gelatine in twenty parts of cold water; when soft, apply heat gently, then add the glycerine and the spirit gradually, about one part of glycerine and eight of spirit.

A good rubber mountant, useful for prints with a high gloss, is made as follows: Pure masticated rubber in a fine state is dissolved in benzole, ten grains in the ounce, or chloroform may be used instead of benzole. This is a very useful mountant for all manner of things, and may be used as a cement for broken bellows, mending waterproof, and so on.

A purely gelatine mountant may be made so: Soak gelatine in water, pour off the surplus soaking water, and add a little fresh cold water to just cover the gelatine; the solution is then melted gently by heat (and this should be always applied by a hot water bath), and when dissolved a few drops of amyl alcohol are added to each ounce; after stirring, it is set aside to cool and set. This mountant of course requires to be warmed ready for use.

A shellac mountant that may be safely employed for glossy surfaced pictures can be made by taking a wide-mouthed bottle and half filling it with methylated spirit; white shellac is then added little by little until, by constant shaking and solution, as much shellac is dissolved as possible. The bottle should then be placed in hot water and the mixture well corked. If this last mountant be used, care must be taken that the print is perfectly dry, and only a very thin layer should be applied. Moreover, the print when pasted should not be immediately mounted, for the solution will in a moment become more sticky by evaporation.

On the whole, for ordinary purposes no doubt there is nothing so generally useful as a good starch paste; it is harmless to all prints and papers, and there is one great advantage—it is very cheap. A starch paste with a few drops of any strong antiseptic as preservative, will keep long enough and be adhesive enough for all purposes.—*English Amateur Photographer.*

Notes and Comment

Litmus Paper

In reply to an inquiry, I told you how litmus was made, how used and a few other things about it, in a recent issue. Last week came a letter asking why I did not advise as to its keeping quality and give some information as to how a good sample might be chosen. Always buy the kind put up in glass tubes or bottles, and keep it well corked. Choose a sample that is soft; one that the solution to be tested can act upon at once. Do not mix the red and the blue in the same container, and use each for its own particular work; the red to test for alkali and the blue to test for acid.

We do not Appreciate our Advantages

How all too prone we are to belittle our own possessions in the way of photographic equipments. A friend buys the latest model of a popular camera and has it fitted with one of the newer lenses and at once our own camera is so out of date that we lose half our interest. This is all wrong. If your camera is a last year's model and has only an ordinary lens working at f-8, you are better equipped than a few thousand others who are doing good work. If you wish to find out how really well equipped you are, hunt up an enthusiastic and intelligent beginner; one whose purse limits his outlay rather severely. I found a young fellow struggling with a cheap little toy of a camera the other day; one that was utterly incapable of making a picture. I gave him an old 4x5 Scovill "Detective" that I had discarded years ago. To say that he was made happy, is putting it mild. The new implement did wonders. He certainly turned out work that would have done credit to many of our newer models. He happened to drop in to show me some of his latest work the same evening that I was honored by a call from one of my other amateur friends who was bemoaning the fact that he could not have the latest in the way of an anastigmat working at f-0. He looked over the prints produced with the aid of the out-of-date "Detective," listened to the enthusiastic talk of the producer and left later with a little better idea as to the capabilities of his own outfit. While I am on the subject I would like to suggest an almost inexpensive way of securing much gratification; and that is by presenting any such pieces of apparatus as you may have discarded for something better, to some one, and you can easily find an appreciative recipient. I had an old Universal 5x8 that I gave away a few years ago with the understanding that if it be outgrown or found not desirable it be given to some one else, not packed away. That camera has brought four or five most creditable recruits into the ranks and may be good for several more. The last time I heard from it it had been fitted with entirely new bellows and slides for the plate-holders.

An Artistic Folder

"The Korona and the Film Pack" is the title of an artistic folder issued by the Gundlach-Manhattan Optical Co., which announces that the well-known Film Pack can now be used with Korona Cameras. By means of this device, the field of usefulness of the Korona is greatly enlarged, and it is thereby converted into a Focusing Film Camera. We advise those who own Koronas, and those who contemplate the purchase of a new camera, to send to the Gundlach-Manhattan Optical Co. for the new folder.

The Newspaper Artists

Between the photographers and the newspaper artists there is a bond of sympathy, for both have knotty problems to solve. How frequently the artist is called upon to make a beautiful heroine out of an unlovely damsel whose only claim upon the public is an insatiable appetite for notoriety. Just so often is the photographer asked to beautify a physiognomy that has become a derelict on the tides of time, a wreck dismantled of all its glory. Why should not these two fellow craftsmen join hands? So, the newspaper artists not being possessed of an organ, CAMERA CRAFT is extending the glad hand of fellowship, and in this number gives a complete account of the First Newspaper Artists' Exhibition.

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A HUMBLE TASK
by MRS. JEANNE C. BENNETT
BALTIMORE

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

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A Camera Christmas for the Girl Photographer

By MAUDE E. SMITH HYMERS

Christmas holidays to the girl photographer should have no terrors; rather it may be a season of unalloyed pleasure and satisfaction. For of course she means to give gifts that savor of the joys of the camera, and probably she has been working all summer with that end in view. We all know how pleased our friends are with the gift of a few prints, and if at Christmas time we press these into service in dainty and original designs, each proving remembrance of the individual tastes of the recipient, our Christmas gifts are sure to please.

To begin with there are the booklets, which, though not new, may be made to show much individuality. For the friend living at a distance, who perhaps has never seen your home, make a series of photographs illustrating it. The first page may have a front view, the next a rear, then a peep into the parlor showing one of the family at the piano, perhaps; the dining room with the family at table (you can get a friend to press the bulb while you make one of the group); a glimpse into the rooms of the different members of the household and by all means the kitchen, with scenes on baking and ironing days. Mount these on sheets of heavy cardboard of proper dimensions, two on a page, punch holes at the back and tie with ribbon. You may use a cover of Whatman paper decorated in water colors, or "Our Home" in gilt lettering; but whatever you do don't omit the name of each picture, placing it beneath in your own handwriting, thus lending the touch of personality appreciated.

Then there are booklets showing views of your home town for the friend who once lived there; reminiscences of your summer outing for the one who staid at home, and so on. Calendars, too, may be made extremely novel. For the friend with the dear little boy or girl, make photographs of him or her in characteristic costume for every month in the year; in winter garb, snow-balling or coasting; celebrating the national day; with pail and shovel on the beach; wading, fishing, and schoolward bound. Mount these on a long sheet of Whatman paper folded in twelve panels, one picture to each panel. Below the picture put a slip for the month, which may be taken from an ordinary calendar. If you want your gift unique, however, use blue prints entirely, and typewrite your calendar slips on a machine running a blue ribbon. Decorate the panels with forget-me-nots, and finish with a blue ribbon bow.

Christmas cards, made in much the same way, will be appreciated. Select a picture that will retain its interest, and use a more than usually elaborate mount. Decorate with the brush if possible, and a sentiment in fancy lettering.

Then there are the passe partout pictures, which are easily made. For this you will need only a picture of general interest and beauty, matted or not as you prefer, some clear glass the same size, glue and ribbon. Coat the glass (both sides, as you cannot tell which side is coated when dry) with a solution of formalin one dram, water one pint, and the white of one egg. Shake together ten minutes, filter and apply with a sponge. When dry moisten slightly and apply the picture with a squeege roller. Bind the edges with ribbon, with a bow at one corner, though if a mat were used this is not necessary.

"THIS IS A VERY SERIOUS WORLD" POLLOCK STUDIO

More complicated, but equally beautiful and interesting are the photographs on satin, or linen, which may be made into sofa pillows and like articles. The simplest are the silver prints made with any of the preparations on the market for preparing the cloth, or the prepared linen can be purchased. The blue prints, however, adapt themselves better to decorative purposes. To sensitize the material, soak it in a preparation of 1¼ oz. ferrocyanide of potassium, and 1⅞ oz. citrate of iron and am-

monia. The chemicals are dissolved separately in eight ounces of water (in the dark) and mixed just before using. Saturate the cloth and hang up to dry in the dark room, where it must remain until ready to print. Because of its sensitiveness to light the cloth should be measured and cut the size wanted for each article before fixing. Print until detail is clear, then wash in three waters scalding hot, let stand in cold water a short time, then iron dry between paper. This process gives beautifully clear blue prints.

Almost any subject may be chosen for the center of a sofa pillow, say a wood scene or landscape, filling in the corners with delicate ferns, which may be printed

A PIONEER C. J. ELLERBECK

exactly as though each were a negative. Trim with a ruffle of blue silk, and you will be delighted. Try a scene from a football game for a pillow for a college friend; a boating scene for your sailor boy; and if you can get a photograph in which the friends themselves figure, and commemorating some scene they would like to remember, so much the better.

Your dear girl chum might like your own face on a dainty pin-cushion or handkerchief case, while a favorite grandchild on his necktie case would just suit father himself. For the engaged girl a picture of her fiance with a border of Cupid's bows and arrows will be effective.

In fact there is no end to the appropriate gifts that may be made from photographs, and at Christmas time the girl who possesses a camera is more than usually fortunate.

THE SWING
by HENRY HALL

Improvement of Negatives for Pictorial Ends

By Clarence Ponting.

In this age of photography, when all and sundry practice what, for want of a better name, is termed "pictorial photography," the number of "pure" photographers are in the minority, and therefore a short chat on a few of the methods (not new, perhaps) unknown to many, by which the negative can be improved to produce the final picture, may prove interesting and instructive. Not a very long time ago, people held up their hands in pious horror at the idea of this improving or "faking," as they termed it. They held that a photographic picture must be untouched either by hand on the print or by the greater crime of handwork on the negative, and such things as suppression of detail, holding back a certain portion of the negative during the process of printing, and introducing clouds, were never thought of, till some photographer more venturesome than his brethren actually dared to "print in" a sky. Well, I suppose this was the thin end of the wedge, for we have "faking" nowadays which in some cases makes us wish that we were back at the original stage when the wet plates were used.

It is only fair to say to those inclined to improve their work, that unless they have had some "artistic" training, or are naturally artistically inclined, they would do well to leave this subject alone till they have studied the works both of the well known painters, and, better still, from the many reproductions of acknowledged artists in the photographic world, which may be found in the press of to-day, with constructive criticism, which is the greatest help to the novice.

Fig. 1

Fig. 2

Personally, I think that a photographer who has not a grain of originality or "artisticness" (if I may coin a word) in his body can train his faculties to such an extent, by study and patient examination of the various pictures which come before him, that in a short time he is on the high road to success as a pictorial photographer.

All this may be said to be away from the point, but it really is not the slightest use to attempt to turn out pictures (I speak of them in the true sense of the word, and not as it is generally used) unless one possesses the knowledge of how and why to take a certain subject. Again, unless one has the eye to see—or has trained the eye to see would perhaps be better—how can they pick out the bits which go to make a picture? Then, again, should they try their hand at figure work, they must possess a knowledge of posing and lighting the figure, etc.

That the eye must be trained is a fact that very few photographers realize, and I must be excused for pressing the point so strongly. Now, to turn to the more practical side of the paper.

There are several ways of improving the negative, and also several ways of improving the print taken from a negative so improved, each of which I intend to touch on, in their respective order, and by the aid of illustrations of before and after "improving," hope to show the advantages gained pictorially. Mind, I don't care a "brass button" what the purists say with regard to "faking." I'm confirmed to it, and nothing that they can bring forward will shake my faith in it. It may not be truthful photography, but that it does improve, and in many cases make the picture, very few will deny.

Now, in my opinion, the simplest and most useful form of improving a photographic landscape is the introduction of clouds. Some of my readers may know, and some not, how to "wed" a cloud negative to the landscape; but as this subject is so often dealt with in the photographic press, I need hardly touch on it here, but to convince some, I show an example of a print from a negative before and after "printing" in a sky (figs. 1 and 2).

The next, and perhaps most often used aid, is that in which tracing paper is used in conjunction with stump or pencil on the glass side of the negative. It is undoubtedly the finest means of improving a negative (in competent hands, be it said). This method is to run a thin border of seccotine or aqua glue round and on the glass side of the negative. Whilst this is still moist, a piece of tracing paper slightly larger than the negative is damped, and laid, while still wet, on the glass side of the negative. When the paper has dried it will be found to be as tight as a drumhead and quite easy to work upon. Details can be suppressed at will, parts of the negative kept back which might otherwise print too darkly; in fact, almost anything can be done with it. But let the beginner beware of doing too much. An example is given showing the tracing paper with the retouching, and a print before and after the handwork. In some cases, it is absolutely necessary to make a fresh negative. I have before me an old figure study which has a very harsh lighting, the result being chalky hands and high-lights. Now, to make a printable negative of this, a transparency was made by contact on a backed plate. This was then developed, and when dry, had the glass side covered with tracing paper. On this the high-lights were toned down by pencil, and a fresh negative made by contact also on a backed plate.

This, in turn, was covered by tracing paper and worked on with stump and pencil, with the result shown. Then there is the method of dabbing paint

Fig. 3

Fig. 4

Fig. 5

on the glass side of the negative. This is best done by dabbing the part which requires it lightly with the "painty" tip of the little finger till the part is covered with a thin even coating. Then take a print and see if the desired effect has been produced.

If not, let the part dry, and give another coat. Yellow oil color I find best for this purpose, for when damp it can be removed if not correct, and when the desired effect is produced, it may be allowed to dry, for it will not rub off as the water color does.

Some workers use a knife to reduce the high-lights of a negative, but I cannot recommend this. It is much safer to make a transparency, and to then work on the lights from the back. I have known cases where workers have objected to the longer time required to take a print from a tracing paper backed negative, and have had a somewhat original way of overcoming the difficulty. They varnished the negative on the glass side, and worked on this. Matt varnish was not used, but only the ordinary variety, the result of which was not so good as the tracing paper method, but overcame the difficulty of time required to print. Personally, I don't like it, but give it for those who care to experiment. Matt varnish is another method of working on the back of the negative, but I have found that it does not take the pencil so readily, nor does it allow such a quantity of retouching as the tracing paper.

Workers who favor this method may say that it has the advantage of being readily removed from parts of the negative which are too dense. That this is the case I will not deny, but tracing paper can be made translucent by dabbing the part with vaseline and warming gradually before a fire; so this advantage is very small. Now, let us turn to the illustrations, on which I should like to give a word or two of explanation, and to show what particular method of "improving" was used in each case.

Let us take fig. 1. This shows a print from a negative, the only retouching being on the tree trunks which was to correspond with the cloud which was intended to be introduced.

This appeared to want a good sunset sky to complete it. The sky negative, having been taken (six months after), was fitted to the landscape by the simple process of keeping the horizon line shaded by a focusing cloth whilst using the cloud negative, which was a very thin one. This shows a rather striking effect of what can be done by only the addition of a sky. Figs. 3 and 4 show another example which was made the same way, the only difference being that the water was shaded down to correspond with the lighting from the sky after the sky was printed in. Fig. 3 shows this before "improving," and fig. 5 shows the cloud used.

These had no handwork on the negative at all, but are simply illustrations of fitting a cloud to a landscape. Figs. 6 and 7 show a landscape which was taken on an ortho plate with a screen, increasing exposure ten times. The exposure given was twenty seconds, but resulted in a very much under-exposed plate. Notice here the detailless trees which are clear glass on the negative. The film side was lightly smeared with retouching medium, and "bark" roughly sketched in. But this was not all that was required. The whole scene looked dull and lifeless, and seemed to want sunshine introduced. Nothing could be easier. Coat the glass side with tracing paper, and draw a picture on it. Take a print and see if satisfactory; if not, draw some more until you get the desired effect. The appearance of the negative paper side can be seen from the other figure.

Fig. 6

These notes, which hardly explain as clearly as I should like them to, may help some of the less advanced readers of this magazine to improve their negatives, a thing which every photographer wishes to do at some time or another.

Fig. 7

The Study of Indian Faces

By George Wharton James

With copyrighted photographs by the author

It is a common expression with those who see Chinamen for the first time that "they all look alike." The same is also said of the Indians, Mexicans, and other foreigners who have distinctive national physiognomies. Yet, to those who are constantly in the midst of Chinamen, Indians, Mexicans, or others, there is as much difference between the facial characteristics of each subject as there is between those of any members of the white race. In fact, in this, as in all other matters, the more one sees and knows of individuals the more distinctive they become.

There is no wonder that Lavater became much interested in studying human

A YUMA INDIAN

physiognomy and that he came to the conclusion that he could read the character of the individual behind the face. The later writer, Mantegazza, has given us a fascinating book on "Physiognomy and Expression," but he has taken for his illustrations mainly the childlike and vivacious Italian.

It is the common notion that all Indians are dull, and unemotional, that their faces are always set, glum or stern, unless aroused by some strong emotion as anger or fear. As I have often said there was never a greater mistake.

In his native condition and when he is not on his guard against the hated white man, the play of feeling on the Indian's face is as great and varied as that on the Italians or any other race of so-called child-like people.

To the student and the photographic artist nothing is more interesting than to watch for and endeavor to catch these flitting moods of expression on the Indians' faces. The pursuit has all the fascinations of the difficult hunt. It is as

A WALLAPAI MAIDEN

easy to catch the illusive chamois by running him down, as an expressive photograph of a wild Indian.

A "posed" Indian is seldom a natural Indian. The American world has greatly admired the fine photographs of Indians made by a famous photographer and yet they are no more true to life than are the bridal photographs true to the every-day life of the woman who has settled down to the duties of her household life, and soon becomes the active hustling mother of a family. Both photographs—fancy Indian and bridal—are merely phases. Only during war or on ceremonial occasions is the Indian the be-feathered, dressed-up, beaded, fringed, fantastic individual the

A BASKETMAKER

celebrated photographer represents him to be. And, as these photographs were made away from all the natural surroundings of the Indians, they are not true to life. They are excellent photographs of Indians dressed and posed for the purpose. My photographs are as different from these as it is possible to imagine. I seldom pose an Indian. I catch him on the fly or wait until he begins to talk to some one naturally or unaffectedly, and then, if I secure a negative, I know

I have a facial picture, true to life, and that will some day be of great value to the true student of Indian physiognomy.

Take, for instance, Fig. 1, the photograph of a Havasupai Indian named U-math-ka. For a long time I have tried to get his picture but he has always refused. I once asked him why he was so obstinate about being photographed. With graphic gesture of horror and dread he said: "If you make my picture I die pretty soon. I look at the sun. He get heap hot. I no breathe. I lie down. I die!" When I assured him that no possible injury could result, he yielded to my urgent entreaties so far as to consent to allow me to make his sun-picture, on the sole condition, however, that I would not ask him to look at the camera, or to cease talking—he was repeating some Havasupai myths at the time. His condition was exactly what I wanted, for it enabled me to make the natural and realistic picture that this undoubtedly is. The old man's serious intentness is clearly to be seen. To him the story of the advent of his people was not only a story of fascination but of exceeding importance and he wished the white stranger to be duly impressed with the message he was giving. This is clearly shown in his face.

U-MATH-KA A HAVASUPAI INDIAN

Compare this with Fig. 2, that of a Chemehuevi Indian I encountered on my trip down the Colorado river from Needles to Yuma. I had left my boat by the side of an Indian boat and had followed a trail which led to the Indians' camp. When I returned to my boat I found this man sitting on guard. His face clearly shows questioning, antipathy, and the querulousness of an old man who asks an unwelcome visitor, "What on earth have you come for? Why don't you leave us alone?" To my mind this is a most strikingly marked and interesting photograph, though not even his most adoring friends would claim for it any large degree of beauty.

Yet few people, no matter how prejudiced they might be against the Indians, could look upon Fig. 3, and not find there some marks of beauty and interest. This is a photograph of a Wallapai maiden living in northern Arizona not far from the town of Kingman. When away from the observation of the whites she was one of the brightest, merriest, jolliest maidens I have ever seen—full of fun and jest. She was ever making fun or playing practical jokes. Of as active and

ANTELOPE PRIESTS AT WALPI

WALUTHAMA—TIRED OUT

mercurial temperament as a Spaniard, she was as bright and vivacious as a Frenchwoman, and there was never a face created that was more expressive of the sentiments of the moment than hers. We had become pretty good friends and I had already made several good photographs of her and when I made this picture she was in one of her happiest and jolliest moods. There is an archness of expression and yet a half contemptuous smile which to me very clearly says, "You are a very foolish fellow to spend so much time on me."

It needs no explanation to demonstrate that Fig. 4 is a perfectly natural portrait. Waluthama, my Havasupai host, had been with me on a very dangerous and exciting trip down one of the side canyons of the Grand Canyon, in which we had been accidentally caught in a marble trap from which there seemed to be no escape. For a few hours our case appeared to be hopeless and we had a very disquieting and nervous time. We had to work very hard, also, in order to make our escape, and returned to the camp utterly and completely exhausted. I was

CHEMEHUEVI INDIAN

preparing supper, and Waluthama threw himself down in utter exhaustion, and to this day he does not know that I seized that opportunity to make his photograph. While very little of his face can be seen his sleepy unconsciousness is very apparent.

Now take a look at Fig. 5. This is part of the line of Antelope Priests at the Hopi Snake Dance. I made this photograph at Walpi several years ago. To me it is a wonderful study in facial expression. To these Indians the Snake Dance is the most important ceremony on earth. By it and through it their divinities are propitiated and the necessary rains and other good things come to them. It is as solemn a ceremony as high mass is to the Catholic, and is to be engaged in only by the most earnest, sincere, and reverent worshipers. See the bowed head of old Wiki, the second priest from the left. Reverent devotion is as clearly depicted on his face as could have been done by a painting of Titian, Sir Joshua Reynolds or Millais. All the faces are those of serious, intent worshipers.

Figure 6 is a photograph of an old woman who, at the time of the making of the portrait, was telling me the story of the days when many Navaho women made baskets. Her gaze is clearly fixed on the far-away past. She has forgotten the presence of the stranger and is walking again in the pathways of her youth. She feels bright and young and sprightly. She is gathering willows beside the flowing waters, or, full of exhilaration, is climbing glorious mountains hunting for the materials she needs. For the time being she has forgotten that she is old, care worn, poverty stricken and alone. And yet there is a kind of realization of it and what she now is that shows itself in her face. For she can scarcely conceive that the old and pathetic creature she is today could ever have been the bright and joyous maiden she remembers herself to have been.

In most Indian faces, with the exception of the young, there are wrinkles and many other evidences of care. These marks of time, of Nature's stern furrowing, seem to me to have one clear significance. It is the outward and visible sign of the pathetic struggle for existence which has been never ceasing in the history of most aboriginal races, and especially so since the advent of the white man. Indeed, when I made the photograph (Fig. 7) of a Yuma Indian he was telling me of the hard fight he was having to get enough to eat for himself and family. It is not a distinctive Indian face. Dressed as a white man, smoothed and straightened up, he would not be far from a Caucasian in appearance. His lips are not so thick, the base of his nose not so broad and his cheek bones not so high as most of those of his tribe.

These are but few of the many interesting faces that I might have selected from my collection, but they will suffice to turn the attention of those who have hitherto thought there was no field for photographic studies in this line.

Butterflies as Models

By William S. Rice

With photographs by the writer

THIS IS THE FIRST OF A SERIES OF THREE PAPERS

In the September number of Camera Craft *there appeared an article by Mr. Rice on the photographing of live wild birds. This article created such favorable comment that the writer has agreed to furnish us with a series of three papers on the photographic possibilities of Butterflies, Birds' Nests, and Seaweed.*

Among the moths and butterflies we find many of the most attractive subjects for Photography. Not only are their colors beautiful and attractive but their graceful, airy forms flitting among the flowers, with which we so commonly associate them, appeal strongly to our æsthetic sense for permanent record of their transitory phases. And yet, strange to say, this is comparatively a new and uncrowded field for the photo naturalist to roam in and obtain pictures of these dainty "children of the air." Theoretically, the method is to take the camera

with you and photograph the butterflies as they rest upon the leaves or flit from flower to flower. This is quite feasible and good pictures may thus be obtained, although they lack the definition of time exposures. Exposures of this sort, however, must be very short as the insects are of a restless nature and do not remain in the same position or on the same flower except for a brief period.

For natural history specimens I prefer taking the photographs indoors or in a diffused light, where I can so control the light in order to give longer exposures and thus obtain more definition and detail in the negatives. A serious difficulty in outdoor work is that the butterfly afield is an unreliable model and very seldom can he be depended upon. The better method is to gather cocoons of various butterflies and moths in their proper season and confine them in an insect cage until the butterflies emerge from their chrysalides. It is then, for a brief period in the insect's existence, that it is usually so docile that it will pose long enough to make time exposures of two or three minutes through a small diaphragm opening (64) and very satisfactory pictures will result.

One of the principal advantages in working indoors is that suitable backgrounds may be used; and by controlling the light so that it comes from one source, the light effects are rounded rather than flat, and the details of the structure are more distinctly brought out.

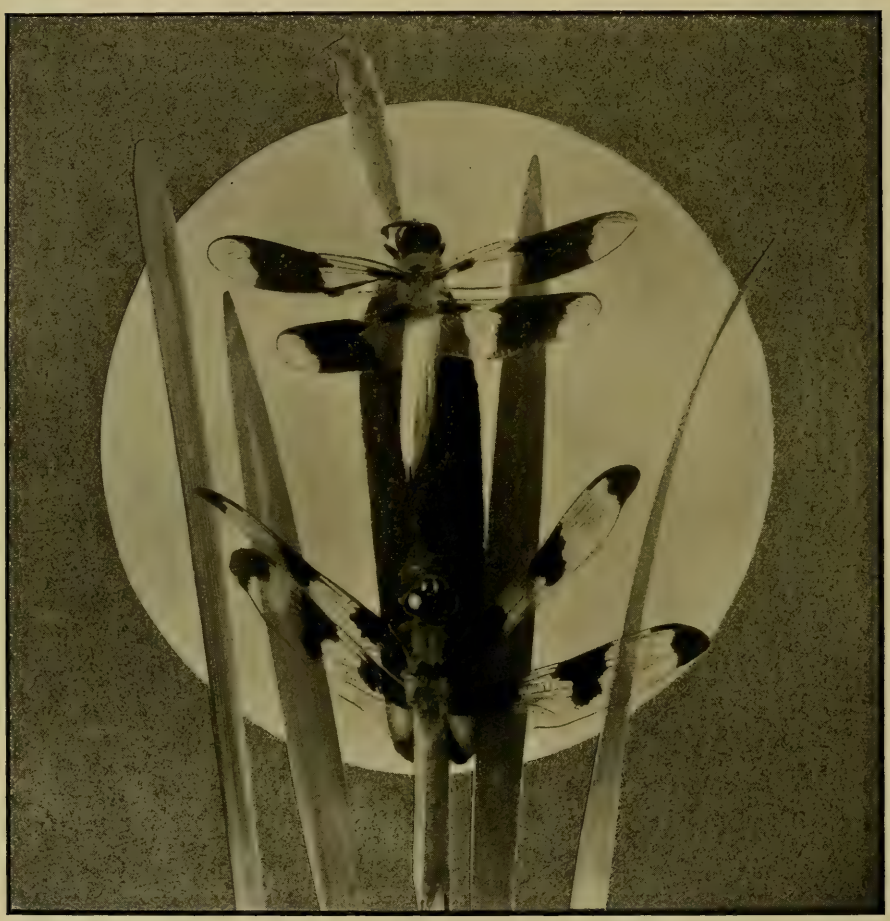
A room with one large window, and having white walls was used by the writer to make the studies illustrating this article. Twigs or sprays of flowers, were fastened in bottles filled with cold water, for the insects to alight upon. Sometimes

I found it necessary to gather the flowers the night before and keep them in the basement until ready for use. They are much fresher when treated that way and do not wilt so easily. The insect is then allowed to settle itself in a favorable position. About fifteen inches back of my models, I place the background so that no objectionable shadows fall upon it and sometimes I place a sheet of white cardboard facing the shadow side of the object in order to reflect light into shadows which would otherwise be flat and muddy. In making these time exposures great care is necessary to avoid the slightest draught of air through the room, as it will be sure to cause the delicate wings or blossoms to vibrate. I have even had the bad luck to lose several good pictures by having inmates of the same house come up the stairs heavily or bang screen doors unknowingly. Really the best place to work is in an isolated building or in a basement, providing you can have the required amount of light at your command.

It is not an easy matter to gather the cocoons if one is not "up in entomology" and does not know the feeding ground of the larvæ. A good way is to watch for the female insect depositing the eggs on some plant or tree, then transfer the leaf to the insect cage and by renewing the food supply every few days you will have an opportunity to study the insects at your pleasure and work out the life history of the species. This latter precaution is necessary from the fact that a caterpillar never drinks but gathers his supply of liquid nourishment from the juices of the leaves. Immediately upon emerging from the pupa case the wings of a butterfly

are in a most deplorable condition, being wet and wrinkled. In a few minutes they will straighten out, but for several hours will remain too weak to bear the weight of its body. During this period the most satisfactory photographic results are obtained as the insect can be placed on a blossom or leaf with no fear of its flying away. It follows then that great patience is necessary in order to obtain a collection of butterfly or other insect photos.

A large proportion of the creatures with gorgeous wings, the moths fly only at night, and therefore the insect hunter is especially fortunate if he



discovers during the daylight any of these beautiful creatures clinging with body, and wings hanging downward from a leafy twig. Such a specimen was the cecropia moth which I discovered one afternoon in an oak grove quietly resting in the deep green foliage. It had evidently just emerged from its chrysalis, although its wings were not strong enough to allow it to fly. After sharply focusing upon it, stop 32 was used and an exposure of one minute given.

The beautiful specimen of turnus or yellow swallow-tail butterfly of which two engravings are shown was raised in an insect cage in the school-room. He was certainly an airy fellow with his wings of sulphur yellow and markings of

black with a suggestion of greenish blue on the underside. The body was a velvety black with dots and lines of pale yellow. I brought a rose bud from the garden and set him gently upon it. After walking all around it and testing his wings occasionally he finally settled in the positions shown in the pictures. The model was placed near a window and a light gray card, such as is used for photograph mats, was placed back of it. The lens was stopped down to 64 and an exposure of three minutes given. Slow isochromatic plates were used, and the plates were developed in a somewhat restrained developer.

The dragon flies are an example of photographing dead insects, not the pinned and stiff insects so commonly met with in a collector's cabinet, but insects freshly

killed in the poison-jar and posed in a naturalistic position on a growing plant while still soft and pliable.

Of course there is not the fascinating element about this latter method present in photographing the live models; but from a scientific standpoint or from a decorative one, the photographing of the dead insects when posed in a natural manner is a legitimate method.

It is often hopeless to think of obtaining photos of some insects afield and some will be impossible while alive. The entomologist's apparatus of catching-net and killing-bottle will serve in such cases and the photographer will find use for a wide mouthed "cyanide of potassium" jar.

Insect hunting, while not so ambitious as bird hunting, is nevertheless filled with possibilities. The indications are that future books on entomology or zoology will all be illustrated in this manner so that literature on these subjects may be better understood and enjoyed by all.

San Francisco has had many Conventions, but none more successful than that of the Photographic Association of California. "Undoubtedly the best State Convention I have ever attended" was the general verdict of the eastern demonstrators and with such a splendid beginning, the future success of the Californians seems assured.

Camera Craft congratulates the convention committee and its assisting subcommittees—their untiring efforts, their willing and unselfish work could not have failed to bring about a complete success.

To have an association, just eight months old, set a new standard of excellence for the senior photographic organizations of the country, will be a severe shock to some. But California is in the habit of doing things on a large scale and the Photographers' Association of California took hold of the Convention work with a true western spirit.

The Art Hall of the Mechanics' Pavilion was crowded to its utmost capacity, on the evenings that were devoted to the public, and the four walls of the gallery, which measures 65x280 feet, were literally covered by the 5,000 pictures that were sent in from some twenty-five states and territories, ranging from the Mexican to the Canadian line and from the Atlantic to the Pacific.

A review of the proceedings shows almost an equal division of work and play and is as follows:

THURSDAY, OCTOBER 29th

9 A. M. The Convention Hall was thrown open to the visiting photographers and an hour's time allowed for their inspection of the exhibit.

In addition to the huge collection of photographs, there were many elaborate displays of apparatus and studio accessories, high grade lenses, mounts, papers and plates.

The western concerns making displays were The Stuparich Mfg. Co., Kirk, Geary & Co., Hirsch & Kaiser, H. J. Schillcock, the Camera Craft Publishing Co., all of San Francisco, and the Lusterine Co. of Portland, Oregon, while the Eastern manufacturers were ably represented by the Eastman Kodak Co., American Aristotype Co., Defender Paper Co., Rotograph Co., M. A. Seed Dry Plate Co., C. P. Goerz, Dorticus Mfg. Co., Voigtlaender & Sons.

10:30 A. M. President F. A. Webster delivered a brief address of welcome.

11:00 A. M. J. F. Mullender gave a highly interesting and instructive demonstration of the possibilities of flashlight portraiture, and proved himself to be an adept in this most difficult branch of the art. Not only were Mr. Mullender's instructions clear and concise, but the best of all the results he obtained were thoroughly satisfactory as was proven on the following day by a display of a series of child studies obtained during his demonstration.

1:00 P. M. The practical work was continued by a demonstration of posing and lighting by George L. Wilcox, who contented himself with literally posing and lighting his subjects without making negatives of them. Mr. Wilcox is widely known for his excellent and original work. His audience gave the closest attention to his instructions and were well repaid by his many valuable hints and new methods.

3:00 P. M. Mr. L. P. Latimer delivered a lecture on "Art" and his criticisms of some of the methods in vogue proved highly interesting.

3:30 P. M. Mr. L. J. R. Holst, of the C. P. Goerz Lens Co., gave a few facts about the lens. Mr. Holst displayed most excellent taste in setting aside all reference to his favorite lenses and confined his remarks to the construction, uses and possibilities of high grade lenses generally. The practical manner in which he handled his subject, and the diagrams which were used in illustrating the more complicated points, made his address perfectly clear, while his explanations of correct distances, proper size of diaphragm and methods of determining proper exposures proved of great value to his hearers.

4 P. M. A demonstration in platinum, carbon and the gum bichromate processes was given by Ira H. Latour, O. V. Lange and T. H. Wilton.

7:30 P. M. Mr. F. K. Hart, of the Eastman Kodak Company, instructed the photographers in the art of bromide enlarging. Mr. Hart carried a complete enlarging outfit with him, and his work was practical and interesting to an extreme.

8 P. M. The Convention Hall was thrown open to the public. A concert helped to entertain the guests, and the gallery was crowded to its full capacity.

FRIDAY, OCTOBER 30th

This was the day selected by the association as a general holiday. Every photographic studio in San Francisco, Oakland, Berkeley, and Alameda was closed, and the employés given an opportunity to visit the Convention and enjoy the special features that had been arranged by the entertaining committee.

9 A. M. Mr. Ira H. Latour, of the American Aristo Company, gave a demonstration on aristo platino.

11 A. M. Mr. M. H. Kuhn, of Rochester, gave a demonstration on bromide papers.

Exhibits of the American Aristo Company, Stuparich Manufacturing Company, Eastman Kodak Company, Dorticus Manufacturing Company, "Camera Craft" Publishing Company

Exhibits of Hirsch & Kaiser, Defender Photo Supply Company, Goerz Lens Company, Lusterine Company and Kirk, Geary & Company

DISPLAY OF THE NORTHWESTERN ASSOCIATION

1 P. M. The photographers were invited to partake of the pleasure of a bay excursion, and they responded with a good will. Captain Leale, of the Caroline, took his two hundred passengers along the water front and gave them an opportunity of seeing the docks, the Union Iron Works and the Spreckels Sugar Refinery. Then the vessel was headed toward the Golden Gate and the fun commenced. Hats were sent flying overboard by the blasts of wind and a number of the ladies succumbed to the rolling of the vessel. A bounteous supply of refreshments had been supplied for the visitors, and those who were not overcome by the waves had a pleasant time. Alcatraz and Angel islands, Tiburon and Sausalito were inspected and the return trip was made along the water front from Meiggs wharf to the Jackson-street wharf. A large number of photographs were taken en route and these will be highly valued as souvenirs of a most enjoyable outing.

8 P. M. The members of the association attended the theater party at Fischer's Theater, where a special program had been arranged for them, and much fun was created by installing an assortment of photographic nonsense in the lines of the comedy.

SATURDAY, OCTOBER 31st

9 A. M. The last day of the Convention proved the busiest of the entire meeting. A demonstration on the manipulation of Defender papers came first.

10 A. M. Mr. John M. Gamble gave a lecture on Art, and criticized the work shown in the gallery.

11 A. M. A demonstration of posing and lighting was given by Mr. Will Lussier, of the Cramer Dry Plate Company, and Mr. H. W. Oliver, representing the Seed Dry Plate Company. These experienced operators kept the photographers until the noon hour. Subjects were seated and the demonstrators showed the use of shades in order to get the required artistic results in Photography. The lectures were more clearly explained by the taking of photographs and the development of prints.

2 P. M. "Practical Talks by Prominent Photographers" took up the bulk of the afternoon. The addresses were short in each case, but they covered every point

Vaughan & Keith Taber's Habenicht

in the camera art. Those who addressed the members of the association were E. W. Moore, I. W. Taber, Louis Thors, H. C. Vaughan, O. H. Boyé, D. F. Mullender and L. F. Terkelson of Bushnell's gallery. The "question box" then followed and queries by members were answered by the photographers who had given the Convention the results of their experiences.

5 P. M. Mr. E. W. Moore of Portland, Chairman of the Rating Committee, announced that the silver cup which the association had offered as a prize to the foreign photographers had been awarded to Cole & Holladay, of Durham, N. C. The gentlemen have cause to be proud of this award, for practically every prominent photographer in the United States had entered the competition. The following is the list of exhibitors from the East and the Pacific Northwest: Association exhibit of Pacific Northwest; Braas, Seattle, Wash.; Cronist, Salem, Ore.; Hofteader, Portland, Ore.; Myers, Seattle, Wash.; Moore, Portland, Ore.; Lynn, Seattle, Wash.; Stamper, Boise, Idaho; Butterworth, Portland, Ore.; Loryea, Spokane, Wash.; Jackson, Tacoma, Wash.; Aune, Portland, Ore.; Tollman, Vancouver, B. C.; Meiser, Vancouver, B. C.; Strong, Portland, Ore.; Clevenger, Grants Pass, Ore.; Mary Carnell, Philadelphia, Pa.; George Edmondson, Cleveland, Ohio; Huntington & Moore, Detroit, Mich.; Knaffl Bros., Knoxville, Tenn.; J. Will Kelmer, Hazelton, Pa.; J. E. Griffin, Wheeling, W. Va.; Parrott, Fort Wayne, Ind.; Schriever, Scranton, Pa.; Frank Medlar, Spencer, Iowa; Pike Studio, Indianapolis, Ind.; William Morrison, Chicago, Ill.; E. B. Core, New York, N. Y.; Brenner, Cincinnati, Ohio; Sweet Studio, Minneapolis, Minn.; W. Heuermann, New York, N. Y.; J. A. Brush, Minneapolis, Minn.; J. Zweifel, Dayton, Ohio; A. T. Proctor, Huntington, W. Va.; Johnstone, Hartford, Conn.; E. Goldenski, Philadelphia, Pa.; Hopkins, Denver, Colo.; Dudley Hoyt, Rochester, N. Y.; F. J. Feldman, El Paso, Tex.; Van Deventor, Decatur, Ill.; Koehne, Chicago, Ill.; W. L. Smith, Sagianw, Mich.; J. E. Rosch, St. Louis, Mo.; Bateham, Norwalk, Ohio; Garo, Boston, Mass.; Will Armstrong, Boston, Mass.; Charles Hearn, Boston, Mass.; Partridge, Boston, Mass.; Godfrey, Chicago, Ill.; Cook, Elkhart, Ind.; Moses & Son, New Orleans, La.; Spellman, Detroit, Mich.; Bowersox, Dayton, Ohio; George B. Sperry, Toledo, Ohio; Dozer, Bucyrus, Ohio; Stephenson, Atlanta,

Miss May Waldron Geo. Steckel L. Geo. Thompson Frank Schumacher

Ga.; Pariuson, Boston, Mass.; Conly Studio, Sabine; Strauss, St. Louis, Mo.; Lifskey, Brooklyn, N. Y.; Cole & Holladay, Durham, N. C.; Feldman, El Paso, Texas; S. L. Stein, Milwaukee, Wisconsin.

The list of exhibitors of California is as follows: T. C. Murray, San Francisco; Edward Rodgers, San Francisco; George V. Robinson, San Francisco; O. F. Lussier, San Francisco; G. W. Haley, San Francisco; The Towers Company, professional printers, San Francisco; Charles F. Kohler, San Francisco; E. Ellis Pollock, San Francisco; R. P. Whigham, San Francisco; P. F. Dana, San Francisco; C. F. Priest, San Francisco; A. P. Hill, San Jose; R. Ellis Wales, San Francisco; J. M. Lenz, San Francisco; H. Tonkin, San Francisco; Higgins & Howland, Fresno, Cal.; Mojonier, Los Angeles, Cal.; O. V. Lange, Berkeley, Cal.; Frank Schumacher, Los Angeles, Cal.; L. George Thompson, Pasadena, Cal.; George Steckel, Los Angeles, Cal.; Miss May Waldron, Marysville, Cal.; W. L. Kline, Redwood City, Cal.; F. V. Adams, San Jose, Cal.; G. W. Potter, Placerville, Cal.; J. W. Souther, San Francisco; Doré Studio, San Francisco; Blauert & Widder, San Francisco; Hana Robinson, Berkeley, Cal.; George L. Wilcox, San Francisco; Charles Weidner, San Francisco; Knudsen & D'Ettel, San Francisco; W. J. Street, San Francisco; D. Sewell, San Francisco; George Kelly, San Francisco; J. D. Givens, San Francisco; Stanford Studio, San Francisco; Elite Studio, San Francisco; Jacob Fowzer, San Francisco; W. J. Carruthers, San Jose; F. A. Webster, Oakland; Louis Thors, San Francisco; Otto H. Boyé, San Francisco; Bushnell Studio, San Francisco; Imperial Studio, San Francisco; George Habenicht, San Francisco; Taber Studio, San Francisco; Vaughan & Keith, San Francisco. Honolulu, T. H., was well represented by Rice & Perkins, and A. Gartley.

The last evening of the session was enlivened by a Promenade Concert, to which the general public was admitted, and at 10 P. M. the photographers adjourned to Elks' Hall where a farewell banquet was served. To say that everybody had a glorious time would be to express it mildly. All the members of the association were present and many of them brought their wives.

Mr. Hirsch, of the firm of Hirsch & Kaiser, and Mr. Helmquist rendered

Bateham Lifskey Bowersox Moses & Son W. L. Smith

instrumental selections. Mr. Guerin sang his way straight into the hearts of the photographers, and the speeches and stories ran fast and merrily on into the wee small hours of the morning.

Probably the most delightful incident of the evening was the presentation of a gold watch and chain with a diamond charm to Mr. D. F. Mullender, the ever popular secretary of the association. Mr. T. P. Andrews was delegated to hand this token of esteem to Mr. Mullender, and his well-planned farce of trying that gentleman on the serious charge of many services rendered to the association, caused a great deal of merriment.

The program was so crowded with good things that it proved necessary to have the baseball game on Sunday morning. And through the fact that the

MR. GEO. HABENICHT AT THE BAT

ON BOARD THE "CAROLINE"

selection of the battle-field was changed at the eleventh hour, many of the members missed this highly exciting contest. The manufacturers' team put up a good fight, but as usual, the professionals proved too strong for them and won by some seven runs.

Special Notice

Beginning with this number, the yearly subscription rate to CAMERA CRAFT *is reduced to $1.00. All paid up subscriptions, at the former price ($1.50), have been properly extended. The high standard of the magazine will be maintained and the size increased in the near future.*

CAMERA CRAFT

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For 1904

It is the common propugnation of those who have failed in the past to promise with inordinate profluence for the future. CAMERA CRAFT has that pride in its past achievements which acts only as a stimulant to greater successes. CAMERA CRAFT has no desire to indulge in prochronism. At the same time, a simple statement of its intention to fully maintain its enviable position, its high quality and its policy of constant betterment is demanded in the face of the reduction in the subscription price which will go into effect with the new year. An increase in circulation, unparalleled in the field of photographic journalism, together with the liberal advertising patronage thereby encouraged, has made this reduction to our subscribers possible. Beginning January first, the subscription price will be $1.00 a year. Another feature that we trust will materially stimulate the growing list of subscribers is our determination to have each number contain matter of interest to both the amateur and the professional, the tyro and the advanced worker. No future issues will be devoted to any single phase of the work.

Our First Convention

The First Convention of the Photographers' Association of California will long stand as an example of what such a convention should be, and what energy and enterprise can achieve in that direction. The enthusiasm so unanimously displayed was well rewarded. The value of the demonstrations and talks so bountifully supplied and of such educational benefit, can hardly be overestimated. The good feeling and fellowship engendered can but result in constantly accruing advantage to all. The fact that every Studio in San Francisco, Oakland, Berkeley and Alameda, closed their doors for one day, but emphasizes the point that neither precedence nor financial consideration were consulted when additional enterprise could be displayed. San Francisco wants the National Convention in 1905. The Convention just closed can safely be trusted to demonstrate the capabilities of our Californian photographers in this direction as well as to justify their claims, too long denied, that the National Convention be held in San Francisco.

Anent our Article, "The Newspaper Artists' Exhibition"

Of the difficulty of translating into type, of conveying to the minds of others, particularly through the medium of a third party, the spirit which actuates and the motive which impels; none should be better informed than the newspaper man. That a misinterpretation of our reasons for giving so full publicity to the exhibition has been consequent upon a too critical and too severe examination of the less important features of that article; we regret. Our only desire was that as full an interest might be aroused in the work as possible and that the exhibition might receive that large portion of appreciation which it so justly merited. That our motives have been misconstrued by some is felt to be as unfortunate as it is undeserved.

Clean Advertising

In the future it will be the policy of this magazine, a policy most strictly adhered to in every sense of the word, to exclude from its pages all advertising matter concerning which any doubt, either as to goods advertised or the methods of the advertiser, can be raised. This policy will be maintained regardless of any financial inducements, personal consideration or pride in the amount of advertising carried. We are all too willing to confess that this matter has not received the attention in the past that its importance has merited. Hereafter, good goods only, will find mention in the pages of CAMERA CRAFT. Our readers may feel assured that any firm admitted to our pages can be trusted implicitly, both as to their methods and the character of their goods.

A Photographic Digest

By Dr. H. D'Arcy Power

Negatives with High Detail

For many purposes, chiefly of a scientific and technical character, or for considerable enlargement, it is desirable to produce negatives with the greatest possible detail and brilliancy. This subject has been dealt with in the *British Journal of Photography* for August 7th and September 18th. A summary of the papers in question may be of use to many workers in this field. It is first pointed out that the varying thickness of dry plates, ranging from 1-12 to 1-25 of an inch, while not of consequence in ordinary work, is sufficient to vitiate the focus in many cases, (I have noticed this in the use of a short focus planar lens) and that "the remedy is found in a return to primitive methods. Focusing is effected, not by the screen provided with the camera, but on a piece of finely ground glass the same size as the plate inserted temporarily in the open dark-slide. This being accomplished, all that remains is to take the latter to the dark-room and exchange the ground glass for the plate, when the exposure can be proceeded with in the usual manner."

In the case of the usual American type of plate-holder, it would be necessary to remove, or cut out, the partition and place plate and ground glass in the side furthest removed from the lens. Speaking of stopping down, the writer doubts whether much is gained thereby in high-class lenses and asserts that when pushed too far a point is reached resulting in loss rather than gain (from defraction I presume).

It is hardly necessary to lay any emphasis on the extreme importance of correct exposure, any lack of which invariably tends to coarseness of grain in the image. For exact work of the kind under consideration an actinometer is almost indispensable. Another factor that may greatly influence results is the fineness of grain and depth of coating of the plate. It is not always found, as one might expect, that an emulsion of ordinary rapidity is more suitable in this respect than one of greater speed. The worker will be well advised to compare plates of different brands with some deliberation, even to the extent of magnification of the film, before deciding on any one make. Other things being equal, the more thinly-coated plate is to be preferred as offering lesser obstacles to the obtaining of perfectly sharp prints, and reducing the, to some extent, inevitable loss of definition arising from lateral diffusion of light in the molecular structure of the gelatine, to a minimum.

Some months ago I referred in this journal to the work of Mr. Howard Farmer demonstrating the gain in rapidity and definition resulting from warming the plates prior to exposure. The *British Journal of Photography* endorses this, stating however that the plate should not be more than comfortably warm to the hand. Dealing with development it is maintained that rapid development tends to coarseness of grain.

Taking into consideration the fact that the image produced by development is formed by the aggregation of molecules of finely-divided metallic silver held in suspension in gelatine, it follows that all solutions acting too violently and energetically must tend to the attrition and blunting, as it were, of these delicate particles, and a loss of the maximum sharpness. Bearing this in mind, it is clear that gradual and steady development is to be preferred, and, in addition, that the fixing-bath should not be of more than moderate strength. All supplementary operations, such as reducing or intensifying, are best avoided, since, as we have seen, any tampering with the molecular constitution of the silver image can have none but a detrimental effect where extreme definition is a desideratum. The only exception we would make is in favor of treatment with a 10 per cent. solution of formalin after washing. A five-minutes' immersion in this, followed by another short washing, will have both a hardening and clearing effect on the negative, and may be used without the slightest fear of detriment.

The final matter requiring attention as likely to influence sharpness and detail, is that of drying. It is wonderful how much damage a little dust and grit is capable of doing. This obstacle, however, is fortunately

well within the workers control. Where the negatives after the gentlest and daintiest wiping with a tuft of cottonwool are slowly and spontaneously dried in some sort of muslin receptacle, after the style of a meat-cooler, any annoyance on this score may be safely dismissed as impossible. The second article on the obtaining of brilliancy, that is contrast, refers first to the diffusion of light within the camera resulting from the presence of dust therein and the fading of the black coating to a light reflecting gray. Secondly, to the loss of black coating on the lens mounts, and thirdly, to light reflecting from dust on the surface of the lenses.

Bromide Printing

Mr. C. Winthrope Sommerville communicates a long and valuable article on this subject to the *English Amateur Photographer* (October 1st) which is well worth careful study. After dealing with the method of estimating the tone range of bromide paper and showing that it yields at least twenty-five visible gradations, he speaks of the endurance of the paper and the possibility of compound printing. He says:

"There are some very mistaken notions about the strength and endurance of bromide paper during the process of printing and developing.

"It is possible to expose and redevelop successively a sufficient number of times for direct combination printing to any probable extent.

"In enlarging work, direct combination printing is really a very simple matter; but it needs care, and where each successive printing cannot be developed to the limit of reduction, it needs as much exquisite judgment as the successful manipulation of one's career in this world of ours.

"In such a simple work as the printing of a sky to a landscape, it is generally the case that either the sky or landscape may be developed to the limit, and therefore only necessary to expose one and develop right out, wash the paper free of developer, place it on the screen in the correct position, for which the printed part allows of fine adjustment, expose for the other part, and again develop to the desired extent. In a case where special effects necessitate control in development, the manipulations are rather more complicated, but easily possible."

He further shows the value of potassium bromide in dealing with over-exposure and in preventing the spreading action of light on the film and then proceeds to show how bromide paper may be utilized to reproduce an extreme range of values. Taking as an example the case of a marble statue against an extremely dark, carved-wood background, in which the ratio of exposure was 1 to 70—viz: 30 seconds for the figure to 35 minutes for the background—he gives the following details as to the method of obtaining the very excellent proofs thereof which illustrate his article:

"To obtain all the detail in the statue, and at the same time preserve as much as possible of the surroundings entailed controlling development for an exposure seventy times in excess of that required for the roof, and about half that time for the screen. This is a pretty heavy strain on a developing paper, but it behaved very well under the ordeal, the details of which are as follows: 'Smooth ordinary' paper was chosen, on account of the exquisite transparent depth it gives in the shadows. A solution of rodinal of 1 in 200 strength, with 10 minims of 10 per cent. bromide of potassium, was used in the initial stage of development. Ten minutes produced a faint image, and the strength was then increased to 1 in 180, the bromide remaining the same. Twenty minutes produced an image in which all detail was visible. The strength was now increased to 1 in 100, and bromide 30 minims per ounce. Seven minutes produced a dull brown image, very flat, weak, and unpleasant to look at from a technical point of view.

"The print was now fixed, during which operation the intensity did not alter, showing that decomposition had only been prevented by the presence of the large percentage of bromide. After washing, the print was immersed in a toning bath of platinum, containing—

Platinum	1 gr.
Mercuric chloride	1 gr.
Citric acid	9 gr.
Water	1 oz.

The substitution of platinum for the silver was continued for twenty minutes, during which time it turned from the original brown to blue-black, and then to sepia. Being still too muddy to make a good experimental illustration, it was intensified slightly by immer-

sion in a weak solution of rodinal and bromide, which produced the much coveted blue-black tone of a platinotype. It was then re-toned to its present sepia color. If the reproduction is sufficiently faithful, it will be seen that, while being anything but technically perfect, the roof column is quite visible, the rendering of the screen almost correct, while all the detail is in the statue. It again speaks well for an emulsion paper that not a single blister appeared during the whole manipulations, which were carried out in a workroom temperature of 70 degrees Fahrenheit."

Orthochrome T

Reference has already been made in these columns to the color sensitizers, ethyl red (used by Dr. Miethe) and Orthochrome T. The *Photogram* for October publishes an illustrated series of tests of the later salt which shows that while, like ethyl red it gives sensibility to all the parts of the spectrum, it is four times as rapid as that dye (hitherto the fastest known). As this dye can be applied to any plate in alcoholic solution and the keeping power remains good, it is clear that we have a very valuable addition to our sensitizers. It ought to be of great use in the making of tricolor photomicrographs referred to below.

The Silvering of Mirrors

Prisms and mirrors have so many and valuable uses in photography that all concerning their production is of interest. Some time ago I gave a method of silvering and I now learn from an article by M. Leo Vignon that the purity of color of the mirror (which of course affects the rapidity of exposure) is dependent on the temperature at which the metal is deposited (the higher the better), and that this in turn is affected by the presence of very minute traces of copper. Therefore, if we want perfect silvering, special care must be taken to have an absolutely pure silver salt.

Supplemental Lens for Stereopticons

In the September number of this journal I published an article on the use of supplemental lenses in the photography of small objects. The following excerpt from the *English Amateur Photographer* gives another valuable application of the same principle:

"Those who are fitting out their lantern appliances for the coming season would do well to bear in mind a suggestion made by M. Bellieni in a recent issue of the *Photo-Gazette*, and this is to apply the principle of supplementary lenses to lantern work, so that after a convenient station is found for the lantern, the image on the screen may be adjusted as regards size. Professional lanternists sometimes make provision for such contingencies by taking with them a considerable number of lenses, ranging from four to twelve inches in focal length, and as the lantern of the professional is generally double, and sometimes triple, the outfit of lenses may cost many pounds. The amateur who shows his photographs on the screen usually cares nothing about the kind of effects that the professional obtains with a double or triple lantern, but the amateur often does wish to considerably control or alter the size of individual subjects on the screen, hence he cannot do better than follow the advice of M. Bellieni, and obtain a set of concave and convex spectacle lenses (the original round form) and mount them as caps to go in front of the ordinary lantern objective. Six concaves and six convex glasses, of 72, 48, 36, 24, 20, and 18 inches focal length, are recommended, and the whole dozen (giving 13 degrees) need not cost more than one high-class lantern objective. Of course the definition may suffer *a little*, especially when the stronger lenses are used, but ordinarily this will not be a serious objection."

Photomicrography in Natural Colors

In so far as the technical applications of color photography are concerned there are few fields in which its practical value can be better or more quickly realized than in photomicrography. Speaking from personal experience I know well how greatly the best photomicrograph fails in presenting the fine differences of structure made apparent by a stained section of tissue. For this reason all workers in this field will read with satisfaction the article of Dr. Martin Duncan in the *British Journal of Photography* on the *modus operandi*. The general method of working the Lumiere process has already been fully explained in a series of articles in the beginning of this year to which the uninitiated may refer. Three negatives are made in the usual way—in the case of Lumiere plates as used by the author the ratios given

are as follows: The blue screen will require four times the exposure of an unscreened plate, and the screens bear the relation of blue 1, green 6, red 16. Therefore, if a normal exposure were 15 seconds the exposures to be given would be for the blue screen one minute, for the green six minutes, for the red sixteen minutes. The screens can be placed either in front of or behind the objective. The rest of the procedure is thus given by the author:

"The exposures having been made, the three plates are placed in one dish and developed together, so that all three may receive the same amount of development. On no account must they be developed separately, or the even balance of gradation will be upset; this is at once realized when we remember that the negatives represent color; thus, if our subject has a major proportion of yellow, the negative taken through the blue-violet screen will appear under-exposed. The plates having been developed, fixed, washed, and dried, the next step in the process is to make a positive from each of the negatives. Three sheets of mica specially coated for transparencies are sensitized by immersion in a bichromate bath for five minutes. When dry, one corner should be cut off one of the mica sheets, two corners from another, and three from the third; so that each may with certainty be recognized. The mica with one corner cut off is used for obtaining a print from the negative taken through the blue-violet screen; that with two corners off for the print from the negative taken through the green screen; and that with three corners cut off for the negative exposed through the red screen.

"The mica positives are printed by daylight, until the image is just visible on the back, and are then developed in hot water at a temperature of about 90 degrees to 105 degrees Fahrenheit, in just the same manner as a carbon print. When all the soluble gelatine has been washed away, the positives are placed in a clearing solution of hypo, formalin, and potassium ferricyanide, after which they are washed, and hung up by one corner to dry. The micas are then ready for staining. The print with one corner cut off is placed in the yellow dye; the print with two corners cut off is placed in a red dye; and that minus three corners in a blue dye. Staining will be completed in from fifteen minutes to an hour, the exact time taken to absorb the correct amount of stain depending on the temperature and the density of the positives. The superfluous stain having been washed off, the micas are allowed to dry, and are superimposed, masked, and placed between two ordinary cover glasses. Such is a short outline of the Lumiere process of natural color photography, and which I have used with great success for microscopic work."

Development

Dr. Sturenberg has an article in the *Revue Suisse de Photographie* in which he strongly maintains the value of using two or three separate developers of different properties, so that according to the effect desired the plate may be transferred from one to the other. Some years ago I employed this method myself, using weak pyro and hydrochrome separately, and I believe that in some cases it is valuable. Nevertheless since adopting Edinol I have not found any need for two developers.

Framing Carbons on Porcelain

A correspondent in Washington writes saying he has an excellent negative of Mount Hood from which he has just made a carbon print, transferred to porcelain. He wishes to make a number of them for Christmas gifts, particularly for eastern friends but is in doubt as to the most advisable method of mounting or framing them. I believe he can find no better way of making them ready for presentation than by framing them with a very narrow, plain gold molding. Anything more elaborate will only detract from the beauty of a good carbon on porcelain and a frame such as I have advised should give as finished an appearance as anything that can be devised.

The Amateur and His Troubles

By Fayette J. Clute

Intensifying for Strong Contrasts

A reader in Iowa asks what I can recommend in the way of an intensifier that will give the strongest contrasts at one operation. There is hardly anything better than the well known uranium intensifier. The formula is as follows: A. Uranium nitrate, 30 grains; water, 8 ounces. B. Ferricyanide of potassium, 30 grains; water, 8 ounces. For use, take three ounces of each solution and add one ounce of glacial acetic acid. The plate is immersed and occasionally rocked until the desired amount of intensification has taken place. The resultant color of the negative is a rich warm brown. The negative should not be soaked in water previous to treatment as is recommended with most methods as such soaking seems to cause unevenness of action. The advantage this method has over others, aside from its control as to amount of intensity, lies in the ease with which the work may be more or less undone by allowing the plate to soak in a solution of ammonium corbonate or even plain ammonia and water. By using a brush charged with either of the two latter, much local control may be secured.

Doing Things Right

Did you ever watch the average failure at photography try to do something? I mean the kind of an amateur that gives up photography after a season or two and tells everybody that it is too much bother. Even so simple an operation as making a few prints on developing paper, leads only to trouble and disappointment. He puts a sheet of the paper in the printing frame and proceeds to expose it to the light without any definite idea as to what the time should be. That sheet of paper is of course wasted. He has not timed the exposure and going by guess work, the next one is nearly as bad. A few trials and he makes up his mind the developer is at fault. The developer is changed and again the fun begins. If then there is no improvement in the results the paper is bad and the dealer is blamed for his dishonesty in working off poor paper on his customers. The best of the batch are carried through the fixing and washing and displayed to his friends as photographs; photographs that would have been all right if it had not been that the paper was all defective as one could easily see by the poor results obtained. This is by no means a fancy picture; it is an actual occurrence and one so natural with a certain class of amateurs that it did not seem at all strange at the time. Suppose we will sketch another scene. Mr. Amateur this time is equipped with paper that he knows has been carefully stored since coming into his hands and with a developer that he knows is compounded from good chemicals exactly as advised by the makers of the paper. A sheet of the paper is placed in the printing frame and the exposure made at a certain distance from the light for a length of time that some previous work has led him to believe would be about the right time for that particular kind of a negative. The print may be a trifle over or under-exposed but as our worker has counted the number of seconds and knows about how much more or less time should be given, the next print comes up all right. He can go on printing from that negative for the next hour and every print will be a good one. Should a defective print result, its cause is easily traced. Should a lack of contrast or an excessive flatness result, our more painstaking friend changes to another grade of paper; one that will give a nearer approach to the kind of print required. It is all a matter of going about the thing in a systematic manner.

Defective Material

I doubt if there is a line of goods offered for sale that is as easily assailable as to quality as the supplies furnished the photographer. Mind you, I am not saying the photographic supplies offered are poor in quality. I really believe the quality of photographic supplies, taking them individually or collectively, is higher than in any other line of trade. The trouble is that so much depends upon the worker that no matter

how perfect are the materials supplied, a certain number of users will fail to achieve good results. This would not be so bad were the users less prone to lay all blame upon the material and did the manufacturer have a little better opportunity of clearing his skirts from blame. The publisher of this magazine can order a lot of paper of a certain weight and finish and there is no question as to the quality of the goods. If the next issue of CAMERA CRAFT is not up *standard* he does not take the paper back and want it replaced. The same with the press, the type and the ink. We will turn the matter around and admit that the manufacturer of a plate or paper for photographic use has a good opportunity of working off inferior products; do you imagine for a moment that it would pay him to do so? It most certainly would not. If you wish to buy a little milk-wagon route you will find that you are expected to pay about a dollar apiece for each customer. It is safe to say that each customer of a plate or paper manufacturer is valued much higher, simply because advertising bills, demonstrators' wages, and other incidentals, are costing several thousands of dollars each year. Each customer has a cash value just as truly as any other part of the equipment of a business. Is it at all likely that the manufacturer is so short sighted as to risk the loss of any part of this asset for the profit on a dozen plates or a gross of paper? I think not. Take the firm that offers to send you a sample dozen of their paper for 25 cents. It is a safe proposition that the advertising of the offer costs them nearly if not all of the amount received. They practically send you the sample free. Admitting that they did make 20 cents on every dozen sent out just for the sake of argument. Do you imagine they would sacrifice your possible future orders by sending you other than a perfect article, just for the sake of 20 cents? I doubt it.

Leaky Cameras

An amateur came to me the other day with a repetition of an old story. All his negatives were fogged more or less and he could not locate the trouble. A peculiar phase of the trouble was the fact that one portion of the plate used appeared to lack sensitiveness. This was invariably towards one particular end, no matter which end of the plate was placed in that direction. It was this fact alone that prevented his returning the plates to the dealer, so pronounced was the apparent lack of sensitiveness. Following up the matter by watching closely for plates affected in the hopes of locating the trouble in one of the holders, it was observed that when the camera was used indoors, in dull weather, or when the slide was withdrawn but an instant before the exposure was made and as quickly returned, the trouble did not make its appearance. This demonstrated the fact that the trouble was due to light within the camera other than that passing through the lens. Investigation proved that there was a tiny crevice at the side of the lens board that passed light when the camera was used in strong sunlight. While experimenting to discover the cause, a peculiar effect was noticed, namely, that correct exposure in connection with a slight degree of fog gave every indication of underexposure. A year or so ago I was asked concerning another camera that leaked light through many very minute pin-holes at the corners of the bellows. The user of the camera did not suspect the cause of his trouble which only seemed to him to be a case of wrongly compounded developer. Some of the finest results I ever saw in that line, followed his attempts at portraiture; groups in bright sunlight. This was attributed by him to the use of a developer of peculiar proportion. it was really due to the fact that brilliantly lighted scenes are likely to be improved by a slight veiling such as he secured when using the leaky camera. He never could secure the same softness in his group work after having a new bellows put in the camera, even with the developer so carefully adjusted. The moral of this story is that one can use a camera for months, unsuspecting that light that is not wanted is playing its natural part in affecting silver on the plate.

Not Like a Photograph

It falls to my lot occasionally, as I suppose it does to many of my readers, to defend photographic pictures or reproductions thereof that elicit the above, if not worse condemnation, from the unthinking. A few go further and condemn certain pictures as poor imitation of some other graphic art. That they are wrong, we feel certain; but it is far from easy to give a reason for the faith

within us. We can explain that the characteristics of photography are not those alone that are produced by the skilled employment of perfect productions of the lens maker. We can prove that the needle point of the etcher is not more conducive to artistic results than the much coarser charcoal. The term photograph has no limitation so long as the result is produced by the action of light. Where there is no artistic intention there is little hope of producing work that may merit the name of art. Because a worker deliberately throws a part or the whole of his picture out of focus, because he represses detail as he sees fit, because he does the several other things that detracts from a thorough demonstration of the capabilities of lens, plate, paper and chemicals, the result is none the less a photograph. If all these crimes against our tools are perpetrated with a definite object in view, the results are fully as capable, if not more so, of giving pleasure, as would be the following out of the too common plan of trying to show as nearly as possible the full capabilities of our tools. "Not like a photograph" is not necessarily a reproach unless the user of the term understands exactly what a photograph may present. The artist in photography is he who has an aim above the production of mechanical reproductions of the scenes before his lens, and deliberately employs the tools of our craft to produce results that differ from these evolved by the skilled mechanical user, let that skill be ever so great with which the latter avails himself of his mechanical advantages.

Wide Angle Work

A photographer from South America was talking the other evening and with other experiences he related one that may be a fish story, and it may not. It seems that he was called upon to photograph some rather confined interiors, the results being wanted to illustrate an article in a leading publication. Having no lens of sufficient wide angle, he bethought himself of an expedient he had heard of years before. He secured an ordinary concave reflector made of silvered glass and, hanging it opposite the desired view, photographed the reflection in the mirror surface. The distortion consequent upon the curvature of the glass was easily overcome by copying the resultant negatives through an ordinary low power eye-piece, such as watchmakers use. I do not wish to vouch for the practicability of this method of working, but there may be a hint concealed somewhere in the description that will prove of value.

Snow Scenes

Of course our local workers will have little opportunity of applying any hints on this subject, but we have a few subscribers who are more fortunate. I have been asked during the summer to criticize a number of such pictures and a batch that came to hand recently has convinced me that there is one great fault almost entirely overlooked that lowers the quality of a large portion of this class of work. I allude to the too light skies. Some of the best rendition of snow that I have been fortunate enough to see, are topped with a sky that is of a pronounced shade of gray. This keeping the sky in a very low tone serves to better represent the sky in winter as well as suggesting a degree of cold that is not felt with a sky that is apparently filled with light and warmth. Not only this, but a darker sky allows one to give the snow itself a much truer value without having recourse to the white paper that a lighter sky makes so imperative if the whiteness of the snow is to be at all true to its relative value. Let us use an isochromatic plate on this class of scenes, and, giving a longer exposure to insure the securing of full detail, see if our snow scenes are not an improvement on our former attempts.

Another Outlet

The amateurs of the country are patronizing the various competitions quite heavily, just at present. Though the prizes as a rule, are not large, I am quite certain that the hope of some return for the expenditure so closely coupled with the work, is the main incentive. A better plan, I think, is one I have recommended to several of my correspondents, some of whom have found it most gratifying as to results. I have just received from one of them a clipping from an eastern journal, headed, "Where Our Apples Come From." Not a bad bit of writing, is well illustrated with about a half dozen reproductions of photographs showing various phases of the gathering of the apple crop. The first shows an orchard well laden with fruit, the boughs hanging over and resting upon a typical road fence. A second

shows the gathering of the fruit with a young lady posed on a ladder against the dark foliage of the tree. Other scenes carry the process along until we find a view of a characteristic country railway station with a car being loaded with barrels containing apples ready for market. The series of pictures is simply one of a hundred that the ordinary amateur can find right at his door, particularly the one who resides in or near a small town. Such towns invariably contain one or more individuals with literary aspirations and their services are easily enlisted. Once secured, the added ease with which their illustrated work obtains recognition as compared with other work that may have been submitted, makes it easy for the photographer to arrange a partnership that will prove profitable to both. My amateur friend writes that this article has been the cause of an order from a large fruit-packing house for a series of pictures to illustrate on similar lines a brochure their advertising department desires to get out.

A Snow Scene for the Local Man

Here in San Francisco we see snow under foot about once in a dozen seasons. This did not daunt a friend of mine who wished to get out something appropriate, as seen through other eyes, to the season. He was preparing to make a few Christmas cards with the aid of his camera, about a year ago. A branch of holly was secured from a florist, neatly supported on a wire framework, and then carefully laden with flour sifted on from above by means of the ordinary sifter from the kitchen. The resultant photograph was about as desirable representation of a bit of snow-laden bough as one would wish to see. One wonders if it would not be possible to arrange a small landscape with bits of twigs for trees, small sticks serving as a rail fence and a liberal supply of our ever available sand answering as the *terra firma* to be later covered with the same stock of snow from the sifter. One could carry the thing even further, and by using a bit of silvered glass, imitate very closely the effect of ice-bound water, reflecting the image of the snow-covered trees along its bank. Rather crude arrangement would be permissible in the composition of the landscape as the "snow" would soften and veil any little inaccuracy one might indulge in in the building of their miniature fences and in the planting of their lilliputian trees. Going still further, the end of a small stick could be whittled roughly to a shape that would allow of its being used to mark foot-prints in the snow and wagon tracks could be easily produced. I think the plan would at least be worth a trial, if only as an experiment.

TAKEN WITH A NO. 2 BULL'S EYE

Notes and Comment

F. Harry Hall, who has recently taken charge of the photographic department of the Berlin Aniline Works, announces that the demand for the "Agfa Handbook" has been so great that he has decided to issue another edition. This forty-eight-page booklet would be a valuable addition to any photographic library.

The Eastman Kodak Company announce that they have completed special arrangements with Kodak, Limited, of London, England, whereby their customers will be allowed to compete in the three photographic competitions recently inaugurated by that company. Four hundred and four cash prizes, amounting in value to £1,000 are offered. They hope that there will be such a representation of American work as will be a credit, both in quality and in quantity to the American amateur, and that many of the prizes will be captured by their customers.

Cooke Lenses

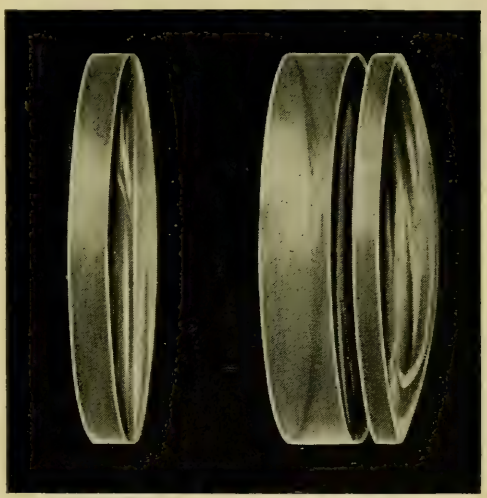
The right choice of a modern anastigmat has become exceedingly difficult. There are many types, and the claims for each are so conflicting as to mislead rather than guide. The purpose of this booklet is to state how Cooke Lenses differ from others, and, in doing so, to avoid the extravagance so common among manufacturers.

HISTORY

Cooke Lenses were introduced some eight years ago by Cooke & Sons, the well-known English designers of astronomical telescopes, a manufacturing license being acquired by Taylor, Taylor & Hobson. Sub-licenses quickly followed in other countries, and a New York office was recently opened.

CONSTRUCTION

The lenses consist of three glasses, and with this simple construction is combined a unique screw-adjustment for use by the makers. Errors which remain in more complex systems, are thus easily removed and a uniform excellence is attained, whereas the older anastigmats frequently show a marked difference one from another. Obviously, more light reaches the sensitive plate through three glasses than through six or eight; there is no cement, and, the air-spaces, being adjustable, assist still further in correcting the entire system. The familiar night-pictures by John Beeby and W. A. Fraser of New York, show how singularly free are the lenses from what is known as "flare" and "ghost." This again is due to the simple construction and to the design of the curves whereby surface-reflections can not fall on the plate. Since the first appearance of the lenses, European opticians have recognized that, while mathematically perfect, these are mechanically the simplest invented since the introduction of Jena glass. They are light, compact, and rigid and durable to a remarkable degree.



THREE SIMPLE GLASSES

THEIR USE

These statements suggest why Cooke Lenses are employed in astronomical observatories, and why they are used at Harvard. For difficult copying and enlarging they are invaluable, and are used by the Coast and Geodetic Survey at Washington for reproducing maps. In process-engraving works throughout Europe and America they are used under process-gratings of 250 lines or more to

the inch. And for tricolor-photography they are unique because the screw-adjustment gives an exact coincidence in the sizes of the color-images.

While thus selected for the best scientific work, the lenses are used by amateurs everywhere—by engineers, in the portrait-studio, by army and navy photographers, and by newspapermen who seek, above all else, rapidity and fine definition. One of the first American purchasers was Mr. Alfred Stieglitz. Many of his well-known pictures are the work of a Cooke Lens, which is still in constant use by him. Wherever possible, the makers facilitate the trial of Cooke Lenses for comparison with others.

EXTENSION-LENSES

By removing the back-glass and substituting another, the entire focal length is increased. Thus, from the same point of view, the photographer obtains larger images of distant objects. These extension-lenses increase the size of image about one third; for example: an object taken with the normal lens, and two inches long in the photograph, is, from the same position, made three inches long with the extension-lens. Better results are thus obtained than with portions of other types used alone. The normal Cooke Lenses may be used for wide-angle work upon plates many sizes larger than those covered by them with full apertures, but the extension-lenses are not intended for this. The latter are supplied in leather pocket-cases.

FOCUSSING-LENSES

Focussing Cooke Lenses focus objects at various distances from the camera, simply by a half-turn of the front ring. This has a scale of distances in feet engraved upon it. The turning of the ring changes the focal length so that focussing can be done in rigid cameras without bellows or other means of extension. Focussing Cooke Lenses are not intended to replace ordinary Cooke Lenses for copying or for large work, but are specially useful for hand-cameras. When their focussing scales are set to infinity they are optically the same as ordinary Cooke Lenses and may be used with like perfect results in extending-cameras, or for any purpose whatever. Shutters can be fitted.

IMPROVED SCREW

The improved screw, supplied with all Cooke Lenses and flanges, abolishes the trouble usual in screwing a lens to its flange. As shown in the illustration, the screw on the lens (like that on the flange) is formed with the thread commencing abruptly at a point plainly marked upon each by an arrow. To screw the two together, the arrow-marks are placed in line, and the "engagement" is effected with perfect smoothness and without a hitch. Three turns will bring the lens home, while, in removing it, there is no fear of dropping the lens through uncertainty in this respect. A further improvement lies in the fact that any number of Cooke Lenses, fitting the same flange, screw home with their diaphragm-indexes in one position convenient for use.

PROTECTION FROM INJURY

Compact carrying-cases of solid leather are included with the larger lenses, and metal dust-caps are made for further protection if necessary.

REASONS FOR SUCCESS

The reasons for the success of Cooke Lenses may be summarized thus:

Their extreme rapidity.

Three simple glasses instead of six or more.

The correction of errors which can not be removed from the older systems, and a remarkably flat field.

A uniform standard of excellence.

The Cooke Extension-lens forming at once a complete anastigmat of increased focal length.

A unique focussing-device.

Patent interchangeable flange-screws.

Compactness and lightness, with great rigidity and durability.

Fine mechanical construction and beauty of finish.

DEPTH OF FOCUS

It is a common mistake to suppose that one lens can perform better than another in respect of its defining in one plane objects at various distances from the camera. The truth is that this quality, which is called "depth of focus," depends upon the focus of the lens and the relative size of its aperture, and upon nothing else. A lens of short focus is better able than is one of long focus to define in one plane objects both far and near. This is why, for *ordinary work*, large apertures are not recommended for Cooke Lenses of long focus. The question is fully discussed in an article on "The Principles of a Lens's Action," mailed free on request.

Replacement and Superimposition of Other Metals

"Bromide paper possesses (at the present extent of our knowledge on the subject) unlimited possibilities in the way of replacement, amalgamation and superimposition of the silver with other metals. These may be of greater or less stability than the silver, and it is to be regretted that there seems to be almost a ratio in this respect with regard to the permanence of the print. Limited space prevents me from stating a few facts which go to prove that a bromide print is as permanent as a carbon or platinum, but the conclusion drawn is simply that the deposit of silver is more permanent than the paper upon which it is supported. In any case, we have this fact that bromide paper is more amenable to substitution, and consequent color toning, with other metals than any other printing paper; and, giving such metals as platinum and gold, the absolute permanence may be relied upon.

"Amalgamation is more unsatisfactory than absolute replacement, as the extent to which one element may affect another in the presence of an organic compound, like gelatine, is practically unknown, and the determination of which reaction is very difficult to any but an experienced chemist. Up to the present my experiments have been almost wholly confined to platinum, with which I have been able to completely replace the silver. The following is an outline of the process and method of determining:

" 'The print is immersed in the solution given for intensification till no further toning takes place. It is then washed thoroughly and immersed for ten minutes in a solution of

Copper sulphate	200 gr.
Potassium bromide	200 gr.
Water	20 oz.

After ten minutes' washing it is placed in the hypo bath, when the intensity will be reduced to a great extent, leaving a lighter sepia image behind. The *rationale* of the process is that the copper bromide converts the free silver into silver bromide, which is dissolved out by the hypo, leaving the platinum behind. The fact is proved by immersing the print in a strong alkali or a developer, when no return to the original black color occurs, as would otherwise be the case.' "

CAMERA CRAFT A PHOTOGRAPHIC MONTHLY

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MANUSCRIPT—The editors will, at all times, be ready to carefully consider manuscript and photographs. When possible, all manuscript should be typewritten.

DEALERS—All photo supply dealers and news dealers are authorized to receipt for subscriptions in our name. Price per year, $1.00. Foreign $1.50. Back numbers can be obtained direct from the publishers at 10 cents each.

Advertising rates are low and to be had on application.

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WANT AND EXCHANGE DEPARTMENT

If you have anything to sell or to exchange try this department. Somewhere among the thousands of CAMERA CRAFT readers there are sure to be several who will be glad to correspond with you. In many cases CAMERA CRAFT can guarantee the reliability of the advertiser and will do so upon request. Otherwise the magazine assumes no responsibility. One insertion free to all seeking employment. Fifteen cents a line, eight lines $1. Cash must accompany advertisement.

Wanted—A situation as first-class retoucher and general assistant; twelve years' experience in all branches; operate in and out doors. C. G. Hayward, 109 D St., N. W., Washington, D. C.

For Sale—One Palmer & Rey Proving Press, good as new, suitable for photo engravers or for use in a small newspaper office. Address Proving Press, care of CAMERA CRAFT.

Here is a little excerpt from my December bargain list:

Border masks, full set, any size up to and including 4x5, 15 cents; reduced from 25 cents; postage 1 cent.

Developing Powders for plates, films or gas light papers, 6 powders making 24 ounces solution, 12 cents; regular price, 25 cents; postage 3 cents.

Ray Filters for 4x5 or 5x7 cameras, 12 cents; regular price, 30 cents; postage 1 cent.

Lantern Slide Tape, 50 strips, cut to size, gummed, 6 cents; never sold less than 10 cents; postage 1 cent.

Long Focus Premo Camera, 4x5 pictures, $17.50; regular price, $45.00.

Focusing Weno Hawk-eye Camera, taking 3¼x4¼ pictures, $17.50; regular price, $27.50. This camera is slightly shopworn.

Enclose postal note or stamps for any of the above or else write for my catalogue and general bargain list, No. 218, wherein will be found a list of cameras, kodaks, etc., the prices of which are from 50c to $50.00, while the regular prices are from $1.00 to $100.00.

E. B. Fox,
174 Fifth Ave., New York City.

Wanted—Amateurs having Cameras (not Kodaks), 4x5, or any size larger, can earn $5.00 per week by taking pictures for us at home. Particulars free. Send stamp for reply. Oval Portrait Co., Caxton Bldg., Chicago.

For Sale—One of the best Galleries in Northern California at a Bargain—retiring from business. W. A. Mooers, Healdsburg, Cal.

Two hundred and fifty-six unmounted views; size 5x7; no two alike; packed in case ready to mail, $3. J. D. Givins, photographer, 1776 Union St., San Francisco, Cal.

View operator, all-around worker, except retouching, and willing to learn, wants position where I can learn something. Salary no object. References and bond. Box 218, Clarksburg, West Virginia.

For Sale Cheap—Studio in best southern town of Oregon, center of large mining and agricultural district; business established over ten years. Address Oregon Studio, Care of CAMERA CRAFT.

Wanted—First-class photographic printer, who thoroughly understands handling Platino, Platinum, and Collodio-Carbon. One who, also, understands Genuine Carbon preferred, but not absolutely necessary. Good salary to the right party. Only first-class man need apply. Address D. B. Chase, Salt Lake City, Utah.

Wanted—Position by first-class printer and finisher. Will give references if desired. Address to L. L., Turner, Oregon.

PORTRAIT STUDY
by E. W. MOORE

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

VOL. VIII SAN FRANCISCO, CALIFORNIA, JANUARY, 1904 NO. 2

Nest Hunting With the Camera

By WM. S. RICE

With photographs by the writer

Few things in nature have a greater fascination for the amateur photographer than the nests and eggs of birds for study or collection. As collecting nests and eggs is a sure step toward extermination, especially since interest in their collection is daily increasing, the camera, with its improvements, is happily used to secure pictures of nests and eggs without the loss of a single bird's life. It is this sort of a collection, then, that the writer would advise the young students of nature to make in order to gratify their love for specimens.

For making notes on young birds too, the camera will be found to be most useful, although the amateur had better confine himself to the nests and eggs to begin with.

In order to secure good photographs of nests, great patience is necessary, especially when the nest to be photographed is situated in dense shrubbery, or when it is higher than the top of the tripod. For work in this line, especially when the nests are desired to appear large on the plates, an ordinary hand camera or set focus instrument will not answer, but on the contrary, it must be one with a bellows extension in order to obtain a sharp focus when within a short range of the object. A camera of this description taking a picture either 4x5 or 5x7 the writer has found to be very satisfactory. It is always important to see the image sharply focused on the ground glass before the exposure is made. Isochromatic plates too, give better results, so far as color values are concerned.

When nests containing eggs are to be photographed in their native surroundings, which should be done in all cases, unless impossible, a "hazy" day should be selected on which to make the exposures. On a day with a bright sun I have used a piece of cheesecloth as a screen in order to exclude the direct rays of the sun and to soften the lights and shadows. A white card was also used at times to reflect light into shadowy places which would otherwise appear flat and lacking in sufficient detail. When photographing ground nests, the camera and tripod were tilted so as to include a portion of the interior, but a view of the subject looking straight downward was not so desirable as it looked flat and unnatural.

The length of exposure depends altogether on the conditions of light, time of day, and "stop" used. The nest of the chimney swallow, which was discovered clinging to the walls of a pump-house, might be termed an indoor or time exposure.

With stop 62 an exposure of three minutes was given. Chimney swallows as a rule build their nests in old, unused chimneys but this one evidently preferred the old pump-house. The nest was built of tiny grape twigs, curiously glued together and to the walls with a peculiar glutinous substance from the bird's salivary glands (which shrink, curiously enough, after the breeding season). The nest is nearly always found in a chimney which is not in use. The breeding season is usually in May or June and the eggs are pure white and rather long and narrow.

A SWINGING CRADLE

The meadow lark's nest was taken outdoors in the afternoon of a cloudy day. With the stop set at 62 an exposure of eight seconds was given. The nest was situated in a bunch of meadow grass overhung by a clump of shrubbery. The eggs of the meadow lark are quite large—about an inch long, white in color, with numerous specks of gray, tan, and reddish brown scattered over their surface. A boy brought to the studio one day a nest of the English sparrow, with its three gray eggs speckled with deeper gray and brown. The nest was quite a bulky affair, composed of grasses, leaves, and strings, and lined with chicken feathers. I

THE HOME OF THE MEADOW LARK

The sparrow's nest was a bulky affair

The nest was a fine specimen of the oriole builder's art

photographed it in the studio quite near a window, reducing the diaphragm to 62 and giving the subject a three-minute exposure. It is necessary to work with a small opening in order to bring all parts of the subject in focus.

One day a boy friend brought to the studio the empty nest of an oriole to have me "take its picture" for my collection. The nest was a very fine specimen of the oriole builder's art. It was pensile, or hanging, about six or seven inches deep, and was built of fine grass, milkweed fiber and woolen threads, with a generous interweaving of horsehair. These materials were woven together in order to form a perfect bag, the sides of which, though thin, were very strong. It was securely laced to a pin oak branch; and, tying the twig to an upright stand and

NEST OF THE CHIMNEY SWALLOW

placing a light gray card a few feet back of the model so that no objectionable shadows fell upon it, the nest was photographed indoors in a well lighted room. After sharply focusing upon the nest with a full opening, the stop 48 was used with an exposure of two and one half minutes. All danger from over-exposure may be guarded against by beginning the development with a diluted developer, and then if the image does not come up within a reasonable time, the developer may be strengthened by adding from the stock solution.

Mounted in a suitable album such photographs would be invaluable in the school-room, where nature study forms a part of the school curriculum. By such means the old fashioned method of collecting eggs is done away with and one need not be afflicted with numerous prickings of conscience for having robbed the parent birds of their little cradle homes.

The Use of Fixed Focus Cameras

By Frank M. Steadman

An amateur friend of mine, wishing to copy a cabinet bust photo the other day with his No. 2 Brownie, I set to considering the matter of the form of the rays or cones through the lens, and the following truth came to me with such clearness that I proceeded to make the exposure without trying to look at the image at all, with the result that is enclosed.

This was about a week before reading the interesting article in your October number by H. D'Arcy Power, M. D., on the "Hand Camera for Still Life Studies," and the matter is so extremely simple that I thought it would be of interest to your readers.

Any lens when set at its focal distance from a certain surface has true cones of rays playing between it and that surface, while on the other side of the lens the rays travel parallel to each other (practically).

Now with regard to the fixed focus camera and an added lens in front of it, the facts are simply as follows: For the fixed focus lens in the camera the true ray cone is behind the lens in the camera (always, if the image is sharp) and with the added lens the true ray cone is in front of it (always, if the surface in front is at a distance equal to the true focal length of the added lens). This condition brings the parallel bar of rays of the camera lens in front and the parallel bar of the added lens behind it, they both existing therefore between the two lenses. As they must thus agree with each other, the image must be sharp if the outer conditions be fulfilled.

To use any positive lens in front of a fixed focus camera it is only necessary to find the focus of the lens to be added, and after it is in place in front of the camera, place a surface to be photographed, the focus of the added lens away.

The enlargement has nothing in common with the sharpness of image. The law already explained governs the latter, while the former is governed by the relative distances of the two surfaces (the image and the surface photographed) from the diaphragm of the camera. (Approximately.)

The added lens, if its focus be half the distance of the diaphragm to the image, will enlarge two diameters; if it be the same, it will copy exact size; if it be twice the length it will copy one-half size, etc.

Any added lens must have the surface photographed, its own focus in front of it when added, and any lens so arranged will focus on any size of camera, fixed focus or not, so long as the lens rests at the place where distant surfaces would be focused; as fixed focus cameras always rest. The enlargement would be greater, however, with the increase in distance from the diaphragm to the image, or with an increase in the size of the fixed focus camera employed.

The distance from the diaphragm to the image plane in the camera, divided by the focus of the added lens, will give the times of enlargement or the relative size of image to object. Thus: Suppose that the distance from the diaphragm to the image on a No. 2 Brownie is 5 inches, and the focus of the added lens, 2 inches (the strongest in an optician's testing case). Then 5 divided by 2½ (adding the distance from the diaphragm to the added lens) equals 2, the number of

enlargements. If the camera used had had 7½ inches of distance from diaphragm to image, then the enlargement would have been three times instead of two, while the image would have been focused by having the photograph two inches in front of the lens just the same and for the same reasons in both cases.

If the focus of the added lens were 5 inches, the copy would have been approximately equal to the original, since 5 ÷ 5 equal 1. If its focus had been 15 inches,

DOOR OF RATHAUS BY OSCAR MAURER

then the copy would have been one third the size of the original, since 5 ÷ 15 equal 1-3.

The simplest way to state it is to say that the focus of the added lens is to that of the fixed lens as is the size of the object to the size of its image.

To find in a simple manner how long the focus of an added lens should be in copying any engraving, statue, photograph, or other subject, proceed as follows: No matter what the size of the image or camera is, simply decide how long you want the image to be in inches. Cut a strip of paper that length and see how many times it is required to go across the surface to be copied. Multiply the distance

from the diaphragm of your fixed-focus camera to the image plane by that number, and get from your optician an ordinary spectacle lens of that focal length, as near as is made.

This lens placed in front of the camera, and the subject placed that distance in front, will give the desired size of image.

The particulars of diaphragm, etc., are fully given in Mr. D'Arcy Power's article mentioned.

An interesting and useful variation of this law is as follows:

Take any two cameras of whatever size and place the lenses at the correct position for focusing long distance subjects. Open the larger lens to its full capacity and place in the smaller one its smallest diaphragm. Now when these two cameras are placed confronting each other, lens against lens, the rays will be in focus at both their image planes, and consequently reproductions may be made from either one to the other. By turning the larger on its back on a table, the smaller one may be made to stand on top of it, with the lens down, of course, and by having a negative in the plane of the smaller one, enlargements may be made either on bromide paper or as positives on plates or films. Suspend a tissue paper or ground glass an inch or so above the negative and get all the light that is possible to shine on top of it. Of course, by enlarging small positives from the small negatives (made by contact) large negatives will result.

To get photographs slightly out of focus in regular work with such cameras, get the weakest possible positive or negative lens and use it in front of the regular. If it gives sharp views still with the smallest diaphragm, get another stronger until slight diffusion is obtained with the smallest diaphragm. Then with the diaphragm next larger the diffusion may be increased.

To get a lens to add for taking half figures, simply look at the subject in the finder until the desired proportion of figure is found by altering the distance to the subject, and then measure the distance from subject to camera and a lens of that focal length will take the image sharp at that distance. The same is true of full figures or busts.

Any old spectacle lenses may be utilized if they are convex or positive and of the same curvature in every direction. Look through the lens at some object and then move the hand to the right and left. If the image travels in the opposite direction from the hand the lens is positive, but if it goes with the hand it is negative. If it will focus a true image of the sun it is sufficiently true in curvature to be used. To find its focus, simply focus the sun on a piece of paper and measure the distance from lens to paper. The subject with that lens must be that far in front when the lens is added.

Picturesque Old Bridges

By Wendell G. Corthell

Illustrated by the writer

Does the reader know of a picturesque old bridge within the reach of his camera? If he does he is fortunate in having a rare subject. The writer's home is in Boston, a city now nearly three hundred years old, yet to his knowledge there is not such a bridge in the whole neighborhood. He really pines for something old, graceful, mossy and quaint. As soon as a bridge gets in this condition or has a suggestion of old age it is found to impede the rush of modern American life and must give way to a conventional structure which may do for illustration in an architectural paper,

Figure 1

but ceases to be food for a photographic magazine. In art, age enriches, whether it be in rugs, fine furniture, buildings, roads or bridges.

The writer has been for over a year trying to find a picturesque old mill with an outside water wheel, but after extended correspondence finds there is no such mill in Massachusetts. Last summer he searched for six months in Europe for such a subject for his camera, but even there the modern turbine has largely crowded out the more artistic but less powerful outside wheel. However, bridges rich in age and beauty may be found almost any where in the Old World, which as every traveler knows, is the prolific hunting ground for the photographer. Let the illustrations given here tell a little of what might be made a long story.

Figure 2

In this article we will not enter Italy, for if we did there would be no end to the rich material which would crowd the memory and claim illustration. Italy is the mecca of the artist photographer. In Figure 1 we have a view of Cromwell's bridge in Glengariff, Ireland. It is claimed that this bridge was begun by Cromwell at an hour's notice. It and its ruin have stood for two hundred and fifty years, first for the transportation of troops and now for the pleasure of the tourist and lover of art.

Figure 3

Figure 2 shows a bridge built in the thirteenth century in the little town of Lehon, just outside Dinan in Brittany. Even then graceful lines, solidity and beauty were secured in a bridge that has served for use now seven hundred years. It is charming enough for some American millionaire to buy for the embellishment of his estate. And yet how the peasants would miss the worn roadway and the daily meeting place where twenty generations have already lingered about the old structure. In Figure 3 we have a glimpse of the famous Brig O'Doon at Ayr made memorable by the midnight crossing of Tam O'Shanter.* Burns must have lingered here many times as also on the old bridge is the town of Ayr which is shown in Figure 4. This massive yet graceful stone structure has stood more than six hundred years. How many lovers have in all that time lingered here in the moonlight and held sweet concourse in the dialect of old Scotland.

Figure 4

"Ye banks and braes o' bonnie Doon
How can ye bloom sae fresh and fair."

Not only commerce but love and war have been here and done their share in wearing down the rock that has stood for centuries. Across this highway has defiled "Many a regal, many a war-like and many a devotional cavalcade."

In Figure 5 we have a rare subject, for this old arch at St. Gingolph rests in two countries. At one end there ever stands the soldiers of Switzerland, while within forty feet, at the other end, is a gendarme of France. Half the quaint old town is in one country and half in the other, and on this bridge, there often comes up the question of tariff which has made many discussions between the peasants and the minions of the law.

The last illustration is from the city of bridges or Bruges, as it is called. The photographer is in happy hunting ground at Bruges.

*This bridge is so old that the record of its building is unknown.

Figure 5

Figure 6

The quaint architecture, the market scenes, the canals, the peasantry, the bridges, and the rare color of age, furnishes plenty for the camera. A city that has had a population of 200,000 and during four hundred years declined to 50,000 becomes quaint indeed. Here in the thirteenth century was a great mart of the Hanseatic League and the marks of mediæval life are all about. Figure 6 in our illustration shows one of the many pretty bridges which enchant the lover of art in this "little Venice of the North."

A CLOSER VIEW OF TAM O'SHANTER'S BRIG O'DOON

A New Salt of Iron Paper, Developed by Nitrate of Silver

By Dr. H. D'Arcy Power

This paper is not really new, for I have mentioned this subject some years ago, but I have recently studied, with the greatest exactness, the conditions under which one should work to arrive at the best result.

The paper is sensitized with a solution of:

Water	100 c. m.
Chloride of iron	20 grams
Oxalic acid	18 grams
Gelatine	5 grams

One spreads this liquid, which may be kept for a long time, with a large brush, on a good paper, well sized.

It is not absolutely necessary to employ special paper, made by Steinbach or Rives. One should dry it rapidly after sensitizing. Under the action of light there is produced a reduction of the ferric salt to a ferrous salt.

$$Cl^6\ Fe^2 - \qquad = 2\ Cl^2\ Fe + 2\ Cl\ H + 2\ CO^2$$
$$Cl^2\ Fe + C^2 \qquad H^2 = C^2\ O^4\ Fe + 2\ Cl\ H$$

That is to say, finally, one has ferrous oxylate, and hydrochloric acid. The ferrous oxylate, which forms in the parts struck by light, is afterward utilized in the development to reduce the salt of silver.

The salt of silver that I employ is a solution of ammoniacal nitrate of silver, obtained by adding ammonia to a solution of nitrate of silver, at 2 per cent. The paper, just as it leaves the printing frame, is plunged into the said solution. The image is developed immediately in black, whilst the background becomes yellow by the formation of hydrated oxide of iron.

After one or two minutes, lift the print and place it in a solution of 5 per cent of oxalic acid, which dissolves very rapidly all the ferric oxide. The paper becomes white and the image appears of a color by no means disagreeable; wash and place the print in a solution of hyposulphite of soda, at 5 per cent, to eliminate all trace of silver; this end is also served by the use of sulphite of soda at 10 per cent.

The image is considerably improved if one employs for the fixation hyposulphite with the acetate of lead. We get a nice warm tint and very resistant, but the best tones are obtained by toning with gold or platinum.

It is an interesting fact that silver obtained by reduction, by this means, is easily substituted by gold or platinum. For gold toning, employ a solution of chloride of gold—1 in 1,000—with a small quantity of bicarbonate of soda.

For toning in platinum, it is not necessary to use the chloroplatinite. One can use chloride of platinum, and in place of making a separate bath, we can add it directly to the oxalic acid, which serves for the development. A very small portion of platinum will give the finest black tints.

I have not found, up to the present, any paper, neither by direct impression, printing, nor development, in which the platinum can be substituted for the silver with such facility. The great advantage of this paper, is, above all, its economy.

The Process Worker

In an early issue we shall inaugurate a new department devoted to the interest of the process worker. No attempt will be made to deal exhaustively with the first principles, but rather, our aim shall be to keep our readers posted on things that are new, and render "first aid to the injured." This department will be in charge of one of the best process men in the country; a man of long experience, much study and many experiments. Any questions sent in will receive prompt and intelligent consideration with an advance answer, if desired, by mail.

The Stop as a Factor in Exposure

Being a Consideration of the Relation Existing Between the Size of the Diaphragm Opening and the Time of Correct Exposure

By F. P. S.

The confused ideas possessed by the majority of amateur photographers relating to this subject are easily accounted for. Their confusion or lack of a thorough understanding of the matter is due to their failure to appreciate one small fact. This fact is: that in familiarizing one's self with any process by which the forces of nature are made applicable to the uses of mankind or to the gratification of his desires, it is necessary to become thoroughly conversant with the meaning of those particular terms that in common practice are used to measure the particular force under consideration, when so applied. In the study of electric lighting a clear conception of the meaning conveyed by the term volt is demanded. In steam engineering the meaning of horse-power as a measure of force must be mastered, and the same can be said of like terms that are used in other crafts. In photography the term F-value is used to designate a unit of measurement of the amount of light allowed to act upon the light sensitive surface of the plate. The amount of this factor must always be taken into consideration in any calculations made with a view of determining anything definite concerning the correct amount of such light action demanded under any particular conditions, in order to secure a correctly exposed plate. The term being a unit of measurement of the amount of light and not of its actinism, makes it only a partial factor in the determination of correct exposure, but a factor none the less important. To explain its meaning as clearly as possible, I shall have recourse to a parallel situation in which the same force, light, is employed, though for a somewhat different purpose, in order that the simile shall be the more perfect.

You have no doubt learned, either by reading or by your own experience, that were you to attempt to photograph a person seated in an ordinary room, lighted by one window, you would find that a longer exposure was required when the subject was seated at a distance from the window than when placed directly beside it. You would also expect to find an increased length of exposure was required as the window was curtained off to a greater or less extent. These varying exposures required, are but the exemplification of two rules governing light action, namely: the intensity of the light diminishes as the square of the distance from its source; and the amount admitted is in proportion to the area of the opening. The first rule will tell us that with the subject eight feet from the window, the requisite exposure will be four times as long as it would, were the sitter but four feet distant. The other will explain why you must double the exposure if the area of the window be decreased one half by curtaining it off. This latter rule does not apply here as fully as it will be found to do when we come to consider our lens diaphragm as a window, because the sitter does not receive so large a proportion of the entire light admitted, as does the plate when light is allowed to enter the camera through the lens.

I think I have now made it plain to you that in the case of our room lighted by one window, we may place the sitter at four feet distance with the window curtained down to one fourth its area, and we will find that the same exposure is required as at a distance of eight feet with the window entirely uncurtained. Assuming that the window is circular in form and that our curtains are of opaque material, each having a circular opening in the center, will make an analogy more complete. If, with the sitter eight feet from the window, its diameter being one foot and entirely uncovered, we find that an exposure of a certain duration is required, we will find that on moving the sitter up to a distance of four feet and employing a curtain containing an opening of six inches diameter, that the same exposure will be correct. As we halve the diameter of the opening in our curtain, we quarter the area, and must therefore quadruple the exposure. As we move our sitter nearer we decrease the exposure as the square of the distance; hence, the two balance each other. The main fact that I have sought to elucidate, is that the size of the opening in the window bears in both cases a definite relation to the distance at which the sitter must be placed in order to make the two exposures of equal duration. In one case, with the sitter at a distance of 96 inches, we required an opening of 12 inches, or one eighth; in the other, with the sitter at a distance of 48 inches, we employed an opening of 6 inches or one eighth again. To obtain the same exposure under the same conditions, it is of course only necessary to see that the round opening in our curtain is, in diameter, one eighth of the distance at which the sitter is placed.

If we now consider our camera as a room and the lens a window we see how analogous the two cases become. The difference between the plate in our camera and the sitter in the room, lies in the fact that the position of the plate is determined by the focus of the lens; or in other words, it must be placed at that distance at which the image is brought to a sharp focus by the particular lens employed. The rule concerning the relation of the size of the opening to the distance, in this case, of the plate, applies even more strictly than in the case of the room and window. If a lens with the plate placed at the focal point, which we will suppose is eight inches, the lens being of eight-inch focus, using a stop one inch in diameter will give the correct exposure for any certain subject in one second; a four-inch lens with the plate at four inches or its focal point, will, with an opening of one-half-inch diameter, require the same exposure, subject and other conditions being the same. The diameter of the stop in both cases is one eighth of the focal length of the lens with which it is employed, and although different in size, the value of both can be represented by a fraction, the numerator of which is the focal length of its lens, hence instead of saying an opening one inch in diameter used with an eight-inch lens in one case, and in the other, speaking of a four-inch lens with a stop one-half inch in diameter, we, in both cases, simply write it F-8.

We can now take either of our F-8 stops and by replacing them with other stops, the apertures of which have one half the original areas, we will find them to necessitate an exposure of double the length of time required with the first or F-8 stops. These new stops will be of the value of F-11.3 because their diameter will be found to measure 11.3 part of the focal length of their respective lenses. F-16 stop for the two lenses will be respectively ¼ and ⅛ inches in diameter, decreasing the area to one fourth of the original openings, and of course

requiring four times the length of time in which to allow the same amount of light to pass.

You will find that the length of exposure demanded by any particular F. value of the stop as compared with one of any other F. value is as the square of their values. The F-8 stop requiring one second exposure; the F-16 stop will require four seconds as the square of 16, or 256, is four times the square of eight, or 64. Stops are generally made so that the exposure increases in a geometrical ratio as F-8, F-11.3, F-16, and the like, but even should they not be so made, this same rule as to the square of their F. value holds good. Should you find one of your stops measured 1-15 of the focal length it would be stop F-15 and would require three and one-half times the exposure of an F-8 stop, for the same reason, the square of 15 being very nearly three and one-half times the square of 8.

All stops are not numbered according to their F. value. The Uniform System, generally abbreviated to U. S., is the most common deviation. The devisers of this system, assuming that F-4 was the largest practical stop in common use, elected that it should be the unit of the system and that the other stops should be marked according to the number of times this unit of exposure was to be multiplied to give the correct comparative exposure with the stop so numbered. F-5.6 became U. S. 2; F-8, U. S. 4; F-11.3, U. S. 8, and so on. Below will be found a table of

F Value	U. S.	Collinear	Dallmeyer	Paris Congress	Zeiss (Old)	Zeiss (New)	Goerz	F Value	U. S.	Collinear	Paris Congress	Dallmeyer	Zeiss (Old)	Zeiss (New)	Goerz
3.16	...	...	1	1/10	...	...	...	18.	...	...	...	...	32	8	...
3.2	...	...	...	...	1024	256	...	20.	...	...	40	4	...	...	...
4.	1	...	...	...	...	...	...	22.36	...	...	50	5	...	...	...
5.	...	...	2.5	1/4	...	...	...	22.6	32	32	...	...	...	...	48
5.4	...	...	...	...	512	128	...	25.	...	...	...	...	16	4	...
5.66	2	2	...	...	...	...	3	27.36	...	...	75	7½	...	...	...
6.3	...	2½	4	1/10	256	64	4	31.62	...	...	100	10	...	...	...
7.71	...	4	5	½	...	...	6	32.	64	64	...	...	...	...	96
8.	4	...	...	...	...	...	...	36.	...	...	...	...	8	2	...
8.66	...	...	7.5	¾	...	...	...	38.7	...	...	150	15	...	...	...
9.	...	...	...	...	128	32	9	44.72	...	...	200	20	...	...	...
10.	...	...	10	1	...	...	...	45.2	128	128	...	...	...	...	192
11.3	8	8	...	...	...	...	12	50.	...	...	250	25	4	1	...
12.25	...	...	15	1½	...	...	...	54.77	...	...	300	30	...	...	...
12.5	...	...	...	...	64	16	...	63.25	...	...	400	40	...	...	...
14 14	...	...	20	2	...	...	...	64.	256	256	...	...	...	...	384
15.81	...	...	25	2½	...	...	...	70.71	...	...	500	50	...	...	...
16.	16	16	...	...	...	...	24	71.	...	...	...	...	2	...	...
17.32	...	...	30	3	...	...	...	100.	...	...	...	...	1	...	...

the various empirical systems of numbering most generally employed, showing the F. value, as near as possible, of each stop so numbered. Where a lens is found furnished with a set of stops bearing no numbers or the meaningless 1, 2, 3, 4, etc., sometimes used, one should at once ascertain the focal length of his lens, and by dividing this distance by the diameter of each diaphragm opening, determine their F. values and so mark them.

PORTRAIT
by GEORGE HABENICHT

A Simple Method of Timing a Shutter

By Ulysses G. Orr

"The Amateur and His Troubles" department of Camera Craft, having been asked how the arc of a one-second pendulum can be graduated so that each subdivision will represent the one one-hundredth part of a second, the reply was, as might have been expected, "To do this would require no small amount of calculation."

As many others who have not the time nor inclination to solve this problem, which is tedious in the extreme, involving as it does, for accurate solution, the use of elliptic functions, would doubtless be glad of the opportunity of testing the speed of their shutters by this simple method, the writer takes pleasure in giving to Camera Craft readers the result of his experience with this method of timing a shutter.

In the first place, the one-second pendulum moves too slowly to be of use for testing shutter speeds, with any degree of accuracy, from one-tenth second up, so the half-second pendulum is used.

Obtain a piece of black rubber covered cloth, 12 inches by 18 inches, having a dull finish, and pin it to a table. Through the center draw a vertical straight line entirely across the cloth. A draughtsman's ruling pen is the best instrument for this work, but an ordinary pen can be used, and any white ink will answer. The ink may be made by thinning Chinese white, or any white water-color. Chalk may also be used, but will easily rub off. Drive a pin through the cloth one inch from top, and in the line just drawn, then secure a stout thread to the pin and to a sharp piece of chalk and describe lightly an arc of a circle exactly 9 3-16 inches from the pin. Let the line extend to within an inch of each side of the cloth. From the center straight line, lay off each way, the five main divisions shown in accompanying diagram, marking them by puncturing the cloth with a pin. This will be done by laying a rule against the arc and laying off the measurements given in a straight line. Do not try to follow the curvature of the arc when laying off these divisions, as the measurements given represent chords of the arc and were so figured that the work of laying out might be as simple as possible.

The distances to be laid off each side of center line are as follows:

1st	division	2 7-32 inches or	2.22 inches
2nd	division	2 1-8 inches or	2.12 inches
3rd	division	1 7-8 inches or	1.88 inches
4th	division	1 3-8 inches or	1.38 inches
5th	division	9-16 inches or	.55 inches

These divisions may then be subdivided into ten equal parts: in this case it is sufficiently accurate to make equal divisions, as the scale is now so small that the difference is not perceptible on the negative.

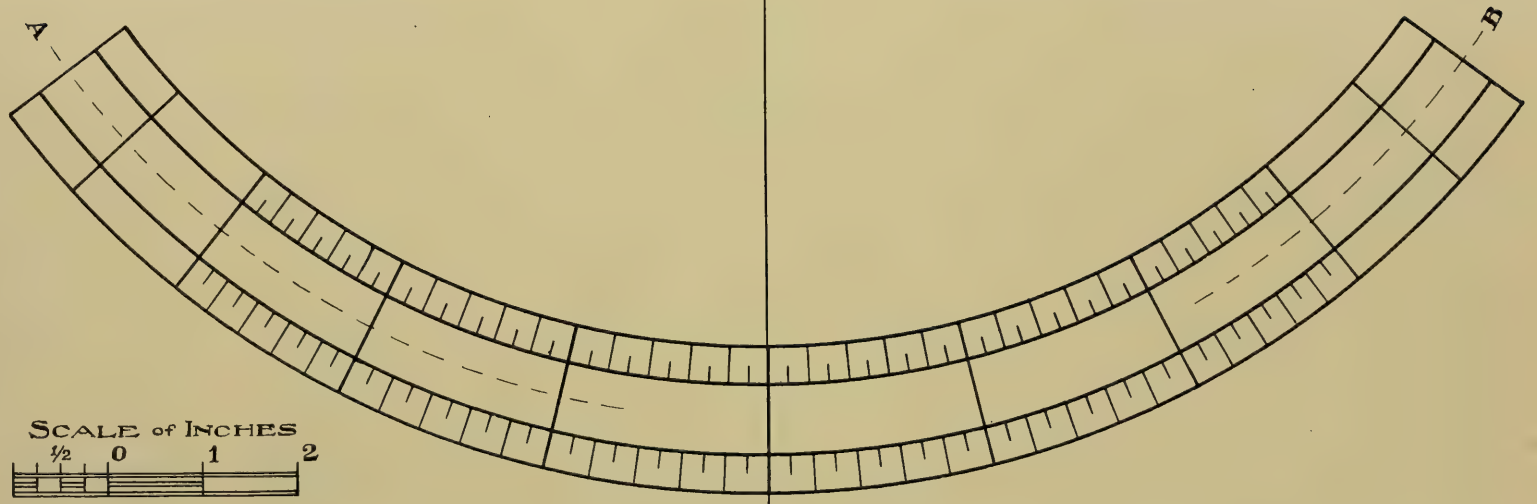
At each end of the scale, as now laid out, draw a line toward the pin at top of cloth, allowing line to extend three quarters of an inch above and below the chalk line on which divisions were laid off. Then complete the scale as shown by sketch, using the white ink. When dry, rub out the light chalk line, and the scale is

HALF-SECOND

Divided into tenths, fiftieths and one-hundredths of one-half second, and representing respectively one-twentieth, one-hundredth and one two-hundredths of one second.

PENDULUM SCALE

The dotted line, A - - - B, indicates the light chalk line which is to be erased after divisions are completed.



ready for use. The center space is left clear so that the light streak made by pendulum bob may be more readily seen on the negative.

Put up the scale in good light, secured to fence or house, and be careful to get center line vertical. This can readily be determined by the pendulum which acts as a plumb-line. Then test the length of pendulum by allowing it to swing, timing it with a watch, and shorten or lengthen the thread until it swings thirty times in fifteen seconds; then it is ready to test shutter.

A satisfactory pendulum is made from a spherical, bright steel button, one quarter or three eighths of an inch in diameter, filled with shot if hollow, and secured to a fine black thread. The thread is to be hung to a pin which must be placed at the point in vertical line from which the arcs were struck.

Set up the camera opposite the center of scale; the sun should be directly behind if possible. After shutter is set for the speed it is desired to test, and slide withdrawn, start the pendulum swinging. Wait until the ball swings exactly to one end of the scale, then the pendulum is swinging exact half seconds just the length of the scale. The exposure must then be made on the return trip of the pendulum and after it has passed the first division, as it is impossible to determine when one swing stops and the next begins. Two or three exposures can be made on one plate by shifting the rising and falling front, or adjusting camera.

After development, the length of streak on negative, made by pendulum bob, will indicate the speed of shutter. And it must be remembered that the pendulum swings in one-half second, so that, for example, if the streak measures eight subdivisions, the speed of shutter will be eight two-hundredths or one twenty-fifth of a second.

After the first experience in testing a shutter, the amateur will understand why his negatives did not prove of uniform quality when he adjusted his stop for one twenty-fifth second and obtained good results, but failed when stop was adjusted for one one-hundredth second. It may be truthfully stated that the average shutter never works at the speed indicated.

A word of caution may not be amiss. All shutters open more slowly than they close, and the streak made by pendulum bob will start with a somewhat elongated point, gradually increasing in width until the full aperture of shutter is reached. The streak will then be of uniform width until near the end when it will taper off, but more rapidly than at the start. The length of streak should be taken midway from the point to full width.

The pendulum should swing as closely to scale as possible, to keep the actual and apparent distance traveled by the ball as nearly equal as may be.

Flashlight Photography

The following, consisting mainly of excerpts from the introduction to "Flashlight Photography," number 29, of *The Photo-Miniature,* we believe will not only prove timely and instructive but encourage many who have perhaps been rewarded with indifferent results to again give flashlight work a trial. For more detailed information as to actual work, with examples and diagrams, we recommend this; a most valuable issue of that excellent series:

Most of the flashlight work we see, especially that made by amateurs, is unsuccessful in that it requires so many apologies. It is customary, in fact, to regard flashlight work as something which, in the nature of things, cannot be seriously compared with daylight photography. In so far as this opinion is based on the average flashlight work in circulation, it is plainly reasonable. But, as a matter of fact, there is no reason why flashlight work should not equal daylight work in quality.

Why, then, is there such glaring disparity between average flashlight and average daylight photography? The question is not difficult to answer. On the one hand, photographers have made themselves familiar with the handling of daylight, and have studied its management under every possible variation and condition. It is a power which they have learned to control by long years of daily practice. The use of the flashlight, on the other hand, is yet experimental; a method of photography with which few professionals or amateurs are practically familiar. Under such conditions it is natural that the average worker should have less success with flashlight than with daylight. But if the problems of flashlight photography are studied with the same care and persistence given to daylight work, is it unquestionable that equal satisfaction and success will follow.

Again, in flashlight photography, the handling of the flash-powder, lamps and other apparatus is really a minor point, although essential. The real essentials are a knowledge of the illumination of the subject, and the exposure and development of the plate. To the man who has already mastered these problems in his daylight work, flashlight photography will present few real difficulties. As flashlight photography is generally done, the worker's attention is devoted to the machinery, because of its unfamiliar aspect and working. Properly this should be handled as familiarly and as unconsciously as the camera is handled in daylight work, so that the attention may be concentrated on the subject and its illumination. Then we may expect successful results, not before. All this I hope to make familiar as we go along. Meanwhile, let the reader go to his Inglis for the principles of "Artistic Lighting," with the assurance that without a familiar knowledge of the illumination of his subjects, all his flashlight wisdom will be unavailing towards success.

A further and fruitful course of failure is found in the childish and tentative way in which flashlight work is usually undertaken. The amateur, barely familiar with photographic manipulation under normal conditions, or the professional, accustomed to handling a hundred square feet of light area, buys a dollar flashlamp with a few ounces of powder, and, by following the alluring directions on the labels, expects to win success under admittedly difficult conditions. It were better to leave flashlight photography severely alone than to attempt it in this way. Its problems cannot be solved in so free and easy a fashion.

ROTHENBERG
by OSCAR MAURER

It should be clearly understood from the beginning that even with the best of tools and equipment, flashlight photography is a difficult art. Certainly it offers quite as many discouragements as may be encountered in any other branch of photography. The first results are generally so unspeakably bad that the method is condemned as without virtue or other redeeming quality. But the difficulties can be overcome with a little care and patience. And when the photographer once understands flashlight photography, he will agree with me that it is very much worth the pains and trouble encountered in its mastery. It will do all that daylight photography can do indoors, with identical results as far as quality of work is concerned; and it will do many things which are plainly impossible when we are dependent on sun or daylight. Even buildings and outdoor scenes have been advantageously photographed by flashlight. It gives us, in short, independence of daylight, or location. We can choose our own time and place. And, if the problem of illumination be overcome, it matters little what our subject may be,—a lively baby or a score of babies, a group of fifty people bent on fun, the interior of cave or tomb, animals or still-life subjects,—we can always be certain of success. Is not this very much worth the knowing?

What apparatus do we need? A moderately quick lens; a camera easy of manipulation; a brand of plates and a developer with whose working we are perfectly familiar (no room for experiment here); a couple of backgrounds for portrait or figure work; a reflector and diffusing screen for occasional use; one or more flash-lamps, and a supply of powder. The accessories, such as grounds, reflectors, etc., will vary according to circumstances. For general use we may safely provide: a piece of dark gray or black felt, 6 feet wide by 12 feet long, tacked to a light pole, which can be suspended from the picture-moulding of an ordinary room; a piece of unbleached sheeting of the same size, fixed in the same way, for the same purpose; and a smaller piece of bleached sheeting, 4 feet by 6 feet, for a reflector. The arrangement of these accessories will be referred to later.

Any good rectilinear lens will serve all ordinary needs. I have used many lenses, some even guiltless of a maker's name, and have got equally good results, so that the maker's name is of no practical importance. Some of the best flashlight pictures in my collection were made with a Kodak No. 4 and the lens accompanying the box. And I have an old Darlot portrait lens, bought for a couple of dollars, which has given me many very satisfactory negatives. In short,—always remembering that the better the lens the better the deed,—any lens will yield good results in flashlight work, provided of course that it has no obvious defect, such as would unfit it for ordinary work. So I say: use the lens you have, or, if you must buy one, buy the best you can afford. I do not use a cone or lens shade on my lens, but believe that a simple shade, such as the Nicholson Lens Shade, could be used to advantage in preventing reflection of the light from striking or entering the lens in many cases. The point of supreme importance is to know the lens thoroughly and handle it intelligently, making allowance for its peculiarities just as you would do in daylight work. Any difference in speed between two lenses, if not too great, can be compensated for in the development of the negatives. It is often worth a great deal to know how to adjust things in developing negatives made under abnormal conditions, and we will give this special consideration when we reach it.

What is true of the lens is true of the camera for flashlight work. Any reliable camera will do all we require if we know how to handle it. There are, however, two points which must not be overlooked. The ground-glass screen must be easily and readily adjustable or removable, so that when ready to put in the plate-holder there need be no time lost, nor unnecessary exertion, nor liability of movement in the camera. This is vitally important, for when everything is ready for exposure, every fraction of a second counts. For the same reason, I advise the use of some sure means of holding the tripod absolutely firm and steady.

Whatever brand of plates be used, I strongly advise that every plate should be backed unless a nonhalation (double-coated) plate be employed. There are reasons for this apart from the intensity of the light. The prolonged development frequently required in flashlight-negative making will often bring out a certain amount of halation which might possibly not appear in quick development, and the delicate tones of the plate may be more easily and more certainly retained in a backed plate than in one not so protected. With films, of course, the necessity for anti-halation backing does not exist.

In flashlight photography, as in other arts, success is finally dependent on the man behind the gun, as popular phrase has it. Apart from the personal factor, it is a debatable question whether the flashlight itself, or the flash-lamp, is the more important item in the flashlight equipment. The flashlight alone, to be sure, makes flashlight photography possible. But the flash-lamp so largely controls the ignition and combustion of the powder that, no matter how perfect this may be, whether plain magnesium or "compound," the lamp practically determines the success or failure of every flash. Here we see the importance of the lamp—a point rarely appreciated until emphasized by bitter experience.

The choice of a lamp is not an easy matter. Probably no other field of photographic endeavor is so replete with freak inventions as the flashlight field. We are beset on every side by a countless variety of lamps, priced from one to over seven hundred dollars, and offering every conceivable feature likely to persuade one to buy. What are the absolutely essential features? The lamp must offer a simple but sure means of securing complete combustion of the powder employed; it must be readily adjustable at different levels; and it must not be too bulky or complicated. Beyond these simple essentials "the doctors differ" vastly. For my own part I would add that the lamp should be operated either by alcoholic flame or electrical fuse. Practically we can only see what is said in favor of the various systems in common use, so that we can decide upon the one best adapted to our needs, and then select an equipment to suit the system chosen.

For the "snapshot" amateur, who shies at the mention of serious work, the flash sheets, or flash cartridges ignited with match, taper or fuse, offer the simplest form of lamp. These are extremely convenient, always ready for use without further preparation, and have their advantages. They are lamps which can be used only once, and contain a fixed amount of powder which limits one to a single style of lighting—a decided disadvantage for all-round work. Those cartridges which are fitted with a time fuse, or the gun or pistol lamps which ignite the powder by pressure on a trigger, are perhaps the best among these simple forms. But it would be folly to attempt careful work such as portraits or groups with them. The same applies to all lamps which can be used in the hands only; their

usefulness is extremely limited, and success with them so problematical that, for work of the sort to be discussed herein, they are out of the question. The worker with a serious purpose will require his hands and attention for other things than lamp holding or firing, and must be prepared to face the expense and trouble of proper apparatus if his work with flashlight is to approximate that made in daylight. I do not here intend to condemn the small, inexpensive lamps, but simply to point out their incapacity for the work to be considered hereafter. They have their place and use, and give results proportionate in varying degree to the expenditure they involve.

Compact hand lamps, fed with alcohol and operated by bulb, lever, or other mechanical device, and which may be used on a stand or other support, comprise a different class and offer a wider usefulness. Properly handled, this form of lamp can be made to do effective work. Broadly speaking, all hand lamps fall into two classes, those made for use with magnesium powder, and those made for use with compound or explosive powders. Magnesium lamps are usually known as magazine, closed, storage, or blow-through lamps. In such lamps the magnesium powder is stored or held in a reservoir or container, and, at the moment of ignition, the powder is blown through the flame in a fine spray. Thus a continuous flame of a few seconds' duration, or several separate flashes, may be made with a single charge of powder. It is obvious that an explosive powder could not be stored or handled in this close proximity to flame. Hence the rule: Never use anything but plain magnesium in a magazine or storage lamp. It is important to note this, as disaster will surely follow any attempt to ignite a charge of flashlight compound in a lamp made for use with magnesium only. Lamps made for burning compounds are known as open lamps. In them the powder is free (not confined) and they require charging for each flash. The Prosch Storage lamp is a good example of the lamps intended for magnesium only. The Luxo lamp is an example of the lamps for use with compounds.

Stand lamps, or flashlight machines, as they are usually called, are intended for use with compound powders only. The stand lamp, preferred by the writer, consists of a metal tray or pan mounted on a metal stand of light construction, and adjustable at any height. This tray is usually perforated at intervals and is intended to hold several small charges of powder, or one long train. At the moment of exposure a flame, heated point, or electrical fuse is brought into contact with the powder and ignites it. Because the light is in this way confined within a relatively small area, such machines are known as "bunch light" lamps. They give a direct light of great intensity, which is easily handled. The illustrations herein are examples of the work of a "bunch light" lamp in capable hands.

The reader will perceive in all this that the chief desideratum in a flashlight machine is to secure the ignition of the powder or compound while it is in the air, and not partial combustion and partial explosion. Any device which permits the powder to "cake" or "crust" after ignition is not giving perfect combustion, and the resulting waste of powder means loss of light as well. This should have weight in choosing a flash-lamp.

For interiors and inanimate subjects generally, or wherever a prolonged exposure of from five to ten seconds is possible, or where it is desirable to illuminate several sections of a room by repeated flashes from different positions, or where

there are high ceilings and abundant ventilation, pure magnesium powder is the safest and best illuminant. Half an ounce of magnesium powder will amply illuminate a room 50 feet square. The advantages of magnesium are its cheapness, safety in manipulation, latitude in exposure and reliability under all ordinary conditions. Its disadvantages are its limited power as an instantaneous illuminant, and the great amount of smoke and dust resulting from its combustion, which unfits it for use in small rooms or confined spaces.

For general flashlight work, portraiture, groups and other instantaneous work, the best results are only possible with a flashlight compound. The choice of a powder is altogether a matter of personal fancy in dealing with the best.

In handling of any flashlight compound, good, bad or indifferent, there is always more or less danger. They are all explosive mixtures and must be handled with care and intelligence from the opening of the vial or container to the proper ignition of the flash. Friction, such as the rotary motion often used in opening a bottle or carton, should especially be avoided. The container should be held at arm's length away from the eyes, and the cork or lip gently eased off with the point of a knife. In charging a lamp keep the flame away from the powder in every case, and do not get any nearer to the lamp than is necessary, placing the powder in its cup or pan with a spoon or measuring cup instead of pouring it direct from the bottle. There is no desire here to raise undue alarm in the reader, but it is very necessary to emphasize the need of care. Many deplorable accidents have happened in the preparation and use of flash-powders, but almost invariably these have been caused by carelessness or lack of thought on the part of those concerned. "An ounce of prevention is worth a pound of cure."

All powder should be kept as dry as possible before use. Certain of the ingredients commonly used absorb moisture very readily. This causes the formation of little lumps or balls which, when the charge is ignited, fall within a circle at some distance from the lamp, sometimes giving a long curved line of light in the negative. When powder is seen to be full of these little balls, it should be poured out on a sheet of paper in small lots, and gently rubbed smooth with the ball of the thumb.

The action of the various powders varies somewhat in light-distributing power. The amount of smoke given off in combustion has much to do with this. In charging a "bunch light" lamp, the best results in portraiture, groups, etc., are obtained by spreading the powder in a line or train not longer than six inches or even less. If placed in a pile much of the light will be lost, owing to the amount of smoke following the ignition of powder in this form, the rush of air following the flame making a screen with the smoke. In making pictures of fairly large interiors the powder should be placed in as long a train as the powder pan or tray will permit. In charging any lamp, however, it is well to be governed by the instructions accompanying the lamp, but beware of being misled by any information to the effect that the powder is "harmless." It is not possible to give any definite instruction as to the amount of powder to be used, this depending on the powder, the subject, and other factors.

The successful photographing of animals under any circumstances presents sufficient difficulties to make it almost impossible to obtain anything really satisfactory. It is here that the use of the flashlight stands out as pre-eminently the proper method. To photograph an animal by daylight, getting the exact gradations

of light and shade which will properly portray its character and coloring, to stop your lens down sufficiently to cover it all over and at the same time make an instantaneous exposure, presents about as choice a lot of uncertainties as I can imagine. Photographing a wiggly baby is a mere pastime compared with it. It is true that, by getting your animal into the glaring sunlight, exposure is comparatively easy, but where are the lights that will show the life of the animal, the fineness of its hair, the life of the eye? Others may get these results by daylight, but I never could. I have made pictures of all the domestic animals by flashlight with results infinitely better than anything I have seen by daylight.

The fireplace lends itself to many interesting effects by placing a small group about it in unconscious arrangement. An ordinary cartridge placed in the grate will supply the light. Care should be used to have some one directly between the lens and flame to prevent the burning of the powder being shown in the picture.

By posing a figure before the window on the first floor, looking out at an angle, and using a good charge of powder, ignited outside at a height of 5 or 6 feet above the head (well to the side of the subject and about 5 feet distance from the window) a novel and charming effect may be secured. The light must be far enough to the side so that the wall of the house will be between it and the camera, and the subject should show the profile, not the full face.

All these little dodges will give very pleasing results and are extremely simple in their making, the only caution needed being to use judgment in keeping the direct rays of the flash flame out of the radius of the lens.

In giving the quantities of powder that I use I have made the lowly teaspoon my scale. It is usual to denote the amount of compound required in grains. My idea of a spoonful is about 50 to 60 grains, but I find it very advantageous to use the spoon on account of its always being more convenient than the scale; and again, the handle lends additional distance, which is very useful in all cases. Before many exposures are made its usefulness as a scale will disappear—your judgment and knowledge of the powder and its power will succeed it. As a valuable assistant in placing the illuminant where required its usefulness will be apparent.

We can now profitably take up the development of flashlight negatives, which I believe it fully as important as any other detail of the work if not, indeed, more important.

Owing to the necessarily slow development of plates exposed by flashlight let me caution the reader to be doubly sure of his dark-room light. How many good exposures are ruined by insufficient attention to this detail! Of course we all know what is required of a lamp: a light so filtered by a medium (generally red glass), placed between the point of illumination and the plate, as to render the handling of the sensitive film safe during its development. For my lamp I use three thicknesses of Dennison's orange tissue No. 69, placed between pieces of plain and ground glass. I find this light as safe as any of the more elaborate and expensive combinations. My lamp was fitted with this combination two years ago, and there seems to have been no material chemical change in the paper as yet.

Next in importance I consider cleanliness the greatest factor in the dark room. Clean trays, clean floor, clean sink, clean hands. If you are in the habit of removing negatives from the hypo bath and flourishing them about, look out for the results. Abstain from putting your hands in the hypo while developing. Washing may seem to remove it, but it does not.

Oh, Shasta, with banners of glory unfurled,
There is truth in thy emblem, and God's in the world.

Sunset Magazine, December, 1903

THE PRIZE WINNER

BY J. R. ATKINS

CAMERA CRAFT

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Let Us Have the Small Cameras Free

CAMERA CRAFT hopes and trusts that the gentlemen at the head of the Division of Concessions and Admissions of the Louisiana Purchase Exposition will, if possible, when used without a tripod, permit 4 x 5 and smaller cameras within the grounds, free of charge. That the admission of larger cameras would seriously depreciate the value of the concession granted the official photographer, is self-evident. That the promiscuous use of tripods would inconvenience visitors, there can be little doubt. That these gentlemen have reserved this concession instead of placing it in the hands of the official photographer, we believe bodes well for camera users. While the imposing of a fee will no doubt add a few dollars directly to the receipts from day to day, it is indeed doubtful if the real gain would compensate for the increased satisfaction denied a vast number of the possible patrons. As to the users of cameras making of themselves a disturbing element, a little thought will convince one that one ordinary individual who has been made to pay for a privilege, is more likely to cause inconvenience to others in securing the full benefit of that grant, than would a dozen others who have been placed upon their good behavior by a concession cheerfully made. Let us have the small cameras free.

Death of Robert Benecke

After an illness of two months, Mr. Robert Benecke passed away, November 3d, at his home in St. Louis. To the wide circle of friends and acquaintances to whom he has endeared himself by his kindly and whole-souled personality, his death comes as a blow most severe. As superintendent of the Cramer Dry Plate Company, he was perhaps best known to the craft as one of the most thoroughly informed men on the subject of photographic emulsions in this country. Photography has indeed lost a master workman, while a vast army of its devotees mourn a friend.

California Photographers and the St. Louis Fair

The early date at which we must go to press, necessitated by our fast increasing edition, prevented the mention that we should have been pleased to give the somewhat delayed announcement of the California Camera Club concerning its invitation to Pacific Coast workers to co-operate. We sincerely trust that their efforts met with the hearty support which they merited and that the representation at the Louisiana Purchase Exposition will be creditable in both quality and quantity.

With Regret

The retirement of Menzies Cumming from the editorship of *The Southwest Photo* robs photographic journalism of a personage at once inspiring, encouraging, entertaining and sincere. An ordained minister of the Gospel; a man who hated all sham and pretension, his influence could be but for good. As an admirer of CAMERA CRAFT and a friend of the editor, it is believed that his intention to retire from the photographic field may be rescinded in favor of our pages.

Our New Department

This month we introduce, under the heading "Snap Shots," a new department. The field of photography is so rapidly widening that at least a brief mention from month to month of the latest applications of our art science seems necessary. While full details concerning such matters as are given mention will not be attempted, it is the hope of the editor that occasionally some item therein contained may catch the eye of a reader who will be benefited thereby. The fact that the leading firm of manufacturing jewelers in this city photographs every important piece of work before delivering it to the customer or placing it upon their shelves was news to a photographer who was approached with a like commission from another house. A real estate firm who have for years held out the inducement that they photograph every piece of property entrusted to their care, have evidently failed as yet to reach the local photographer, if the story told by a rival firm concerning the difficulty they experienced in securing like assistance, be true. We trust this new department may lessen somewhat this lack of information concerning what is being done.

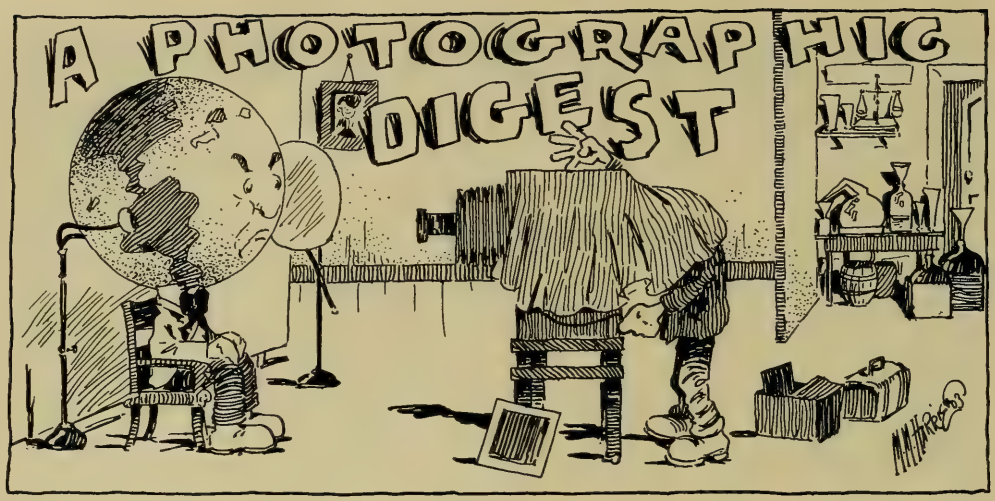
Mr. Erwin Vindicated

The complete vindication of Mr. Erwin, as a result of the recent inquiry into the details of a postoffice transaction which at best concerned him but indirectly, came as no surprise to his hosts of friends. That the result could be otherwise, was never imagined by even the least sanguine of the many who have come within the circle of his charming personality. We knew that it could not be otherwise, and gladly join our congratulations with those of the California Camera Club, whose chief office he has so ably filled.

The Missouri State Amateur Camera Club

This new organization, through the indefatigable and well-directed efforts of Mr. William Burton and a number of kindred spirits whose interests he has enlisted, is rapidly making for itself a record in the way of rapid growth. Centrally located and commodious quarters have been secured, which will be fitted up in such a way that they will compare with any similar club rooms in this country. The main motive which prompts this energetic pushing ahead of their plans is a desire that all shall be in readiness so that amateurs visiting the exposition may accept their invitation to make these rooms headquarters while there. Their hospitable intentions should insure them the support of the entire photographic press. The officers of the club are as follows: T. W. McClelland, president; F. J. Suda, vice-president; William Burton, secretary; Earl Fentress, treasurer.

OBJECTS TO LOOKING PLEASANT
by JAMES A. HARAN
Third San Francisco Salon



Intensifying Over and Under-Exposed Negatives

Most workers know that over and under-exposed negatives, when over developed, require reduction by different reducers; over-exposure being better reduced by Farmer's reducer and under-exposure by the persulphate of ammonium. It is not so well known that a like difference is required in the matter of intensification, and *Photography*, in a recent answer to a correspondent, points out that whereas under-exposed negatives are best intensified with uranium, over-exposed negatives should be treated with the Monkhoven intensifier, and suggests the following formula for each:

URANIUM INTENSIFIER

A good working solution is: Uranium nitrate, 4 grains; potassium ferricyanide, 4 grains; water, 1 ounce; and acetic acid, 1 dram. The solution may be used as long as it keeps clear, but as it rapidly deteriorates after a plate has been immersed in it, it is distinctly advisable to make up a fresh solution each time it is required.

MONKHOVEN'S INTENSIFIER

Three solutions are required as follows: A.—Mercuric chloride, 100 grains; potassium bromide, 100 grains; water to make ten ounces. B.—Silver nitrate, 100 grains; water to make ten ounces. C.—Potassium cyanide, 100 grains; water to make one ounce. C is slowly added to B with constant stirring, till the white precipitate, which first forms is nearly dissolved. As an excess of the cyanide would make the solution unworkable, a few particles of the precipitate should be left undissolved, and the clear liquid decanted off. The negative should be bleached in solution A and thoroughly washed. It is then immersed in the silver cyanide solution (B and C), which will immediately blacken the surface and gradually blacken the image down through the film. On turning the glass side of the negative upward the high lights will be seen to remain white for a minute or so after the shadows have darkened. The moment the lights are seen to blacken, the negative should be held under the tap or plunged into water. If the cyanide is allowed to act longer, the negative will speedily return to its original condition. It will be seen that the action is to some extent selective, the shadows are rapidly blackened, and before the high lights assume full density the shadows again begin to weaken, with the result that the lights and the half-tones alone are strengthened, giving increased contrast to the negative.

ANOTHER URANIUM INTENSIFIER

In a recent communication to the *Société Francaise de Photographie*, M. Bunel pointed out that most of the usual formulæ for the uranium intensifier contain glacial acetic acid, in quantities varying even to the extent of 20 per cent. This addition being made with the idea of preventing the staining of the gelatine; unfortunately, however, the gelatine is very strongly attacked by the acetic acid, and when the solution is used for the toning of bromide prints the image

frequently suffers. To avoid these troubles, and to obtain pure whites in the toning, use oxalic acids in place of the acetic, as in the following formula:

Water	100.	parts
Citric Acid	2.5	parts
Or oxalic acid	1.5	parts
Uranyl nitrate	1.0	parts
Potassium ferricyanide	0.8	parts

When the desired tone is reached the print or negative should be washed in water acidified slightly with citric or oxalic acid.

Wrinkles on Gum Bichromate

H. V. Yeo has an article on the technique of gum printing in *Photographic Art Journal* (English) from which the regular worker may learn something. To begin with, he advocates stretching the paper during coating by means of spring clips attached to pieces of one-half-inch elastic, the latter being pinned to the board on which the coating is done. As the paper stretches under the influence of the moisture the elastic takes up the slack without repinning, an advantage every practical worker will readily appreciate.

In the matter of colors, Mr. Yeo says: "The best and richest black is obtained by adding to lampblack a VERY SMALL quantity of yellow ocher." Concerning browns, the writer says: "I distrust all the commercial browns, burnt and raw umber, Vandyke brown, etc. They worked so unsatisfactorily with me that I now get all the browns I require by mixing lampblack and Venetian red. Two parts of Venetian red to one of lampblack gives a dark, rich brown."

Enlarged Negatives

Various methods of making enlarged negatives are extolled by different workers, but that the main desideratum is a well graded and grainless positive, is admitted by all. Hitherto the nearest approach to such a positive is that yielded by the carbon process, using transparency tissue; but we now have a method described by Mr. W. F. Brooke in *Photography* that promises still better results. Briefly stated it is to sensitize a photographic film in a 3 per cent bath of potassium bichromate, dry it in the dark, and print it in the same way as an ordinary carbon print. It is then developed in hot water, the retained silver bromide dissolved out in the hypo bath and residual transparent image finally stained and dried. The film to be used for this purpose is preferably the special film made by the Sanger-Shepherd Company for trichrome work—but any film made with gelatine, soluble in water, will do. During printing, the image appears very much as in platinum printing, and is complete when about the same amount of detail is visible; with an ordinary negative in bright light this will be in about five minutes. For staining, drawing ink is recommended. The great advantage of this method is the large amount of control it gives one for working up the positive, or altering the values; in fact, it gives an immense amount of latitude to the pictorial worker.

We can very slightly stain the print, if we wish a soft enlargement from a hard negative, or conversely, by printing the film a little further and staining in a strong ink solution, we can get a strong positive from a weak negative, and, consequently, a strong enlargement. Still greater contrast can be obtained by the addition of a little red ink or of a solution of scarlet dye to the ordinary ink solution.

Local work can be done by means of a brush charged with strong ink solution for intensifying parts, or by working over other parts with a brush and water, we can reduce the density; in fact, a very great amount of control can be exercised over the final result.

An alternative method of staining is to use a solution of permanganate of potash. This at first stains the film pink, but afterwards the color changes to a sepia, owing to the changing of the permanganate into oxide of manganese. When the proper density is received, a slight rinse under the tap completes the operation, and the film may be hung up to dry. Local work can be done again in this case, as before, by painting over the parts requiring strengthening, with a brush dipped in permanganate, and reduction can be accomplished by brushing over the desired part a weak solution of sodium sulphite, acidified with a few drops of sulphuric acid.

A third alternative method, which yields beautiful transparencies, but lacks the power to control, is to take the print after development and, without fixing in hypo, convert

the silver bromide image into one of sulphide by means of a bath of weak ammonium or sodium sulphide. This gives a very pleasant brown image, but to obtain the best results, it is advisable to print rather deeply in the first instance. This, by the way, is a very pleasing method of preparing transparencies for the lantern, though it is perhaps simpler to bleach a black-toned lantern slide with bichromate and hydrochloric acid, and sulphurize in the sulphide solution after —but this is a digression. To sum up the advantages of preparing positives for the making of enlarged negatives by the above process, we find that, in contrast with the ordinary method of single transfer of carbon tissue on to glass:

1. No safe edge required.

2. Printing, after a little experience, can be judged visually, instead of having to rely entirely on an actinometer, though, of course, the use of one tends to greater certainty in the method of working.

3. Almost unlimited amount of control over the variations, needed for pictorial effect.

4. No transfer needed, and thus all risk of troublesome frilling and blistering is avoided, and no markings due to pressure of squee-gee on the paper.

5. No troublesome coating of substratum on glass to receive the transferred image.

6. Less liability to washing away of fine details in the high lights, and, consequently, a longer scale of gradation is given to the positive.

7. The necessity of using boiling water is obviated.

8. Manipulations are reduced in number, and, consequently, the liability to failure is lessened.

9. If necessary, the staining may be washed out entirely by the use of weak acids, and restaining on a different scale adopted.

Recent Improvements in the Carbon Process

Carbon printing, which in all-round worth is undoubtedly the most perfect printing process, has recently been the subject of investigation by two different workers, along different lines, and each case with valuable results. First, Professor Namias made a series of experiments on the possibility of increasing the keeping qualities of sensitized tissue, with the result that by the addition of citrate of sodium or oxalate of potassium to the sensitizing bath, he was able to produce tissue, keeping perfectly for a month, and still soluble at the end of two months, the required addition being 3 per cent of the bath. On the other hand, he found that tartrates and lactates lowered the stability of the tissue. Following immediately on these observations comes the valuable report of Mr. H. W. Bennett to *Photography* of his success in improving the printing qualities of home-sensitized tissue. Mr. Bennett points out that the ready-sensitized tissue in general professional use in Europe (but not procurable in the United States) is sensitized by the addition of the bichromate to the emulsion, and that this tissue is not only more soluble during development, but produces prints of greater brilliancy and much finer gradation in the high lights than can be obtained by sensitizing the tissue in a bichromate bath. He therefore started out to discover a method of giving to bath-sensitized tissue the qualities of that sensitized during manufacture. This is not only important to amateurs in general, but particularly to the American professional who is dependent on the European market for his tissue, and owing to its short-keeping qualities, can not use the ready-sensitized form, but must sensitize in the bath. It is not necessary to report in detail the experiments made—the final result being that Mr. Bennett found the sought-for substances in sodium carbonate, and still better in ammonium citrate. I append his own statement as to the formulæ, and method of working:

SENSITIZING FORMULAE

A.—Potassium bichromate	1	ounce
Citric acid	¼	ounce
Ammonia	*x*	
Water	50	ounces
B.—Potassium bichromate	1	ounce
Citric acid	½	to 1 dr.
Ammonia	*x*	
Water	50	ounces
C.—Potassium bichromate	1	ounce
Potassium citrate	½	ounce
Ammonia	*x*	
Water	50	ounces
D.—Potassium bichromate	1	ounce
Sodium carbonate (crystallized)	½	ounce
Ammonia	*x*	
Water	50	ounces

In all cases the solids were dissolved separately and their solutions mixed.

(The *x* amount of ammonia is a quantity just sufficient to change the orange color of the bichromate into a lemon yellow.)

The solutions will keep well in stoppered bottles. As a small quantity can be used if the tissue is kept flat—four or five ounces for six pieces 8½ inches by 6½ inches—the used solution should be thrown away, or a larger quantity may be taken and used several times if fresh stock solution is added each time. A solution used too many times will give uncertain results.

These formulæ work well with Autotype, Barnet, and Illingworth tissues. For Wellington, which is very soluble, the quantity of ammonia should be reduced to one third of that given. A quantity of solution should be taken and ammonia added as directed, and twice its volume of stock solution without ammonia added to it. The tissue so sensitized will work in every respect similar to the other brands named with the full quantity of ammonia.

RESULTS AND CONCLUSIONS

For general work solution A should be used, as it secures the finest possible gradation in the lighter work, a full scale of tones, good shadow detail, and contrast without harshness. From a negative suitable for carbon printing a rich print can always be obtained, as the tissue should be very uniform in quality and condition at the time of using. The difference between the various formulæ is entirely in the gradation resulting in the lighter tones. Solutions B or D may be used for under-exposed negatives in which the lighter tones are relatively too strong or harsh, or for any work when the gradation at the light end of the scale is too strongly marked and requires softening down. Solution C gives a result similar to B with the larger quantity of citric acid. Formulæ A and B are preferable to C and D.

The proportion of water may be varied according to the degree of contrast required, a stronger bath giving less contrast and vice versa. This strength will be found best for general work.

The method of sensitizing adopted has been to immerse the tissue, face downwards in the solution for ninety seconds, then lay it face down on a sheet of glass and squeege gently to remove as much solution as possible, and if any surface moisture should remain on the back rapidly remove it with blotting paper; then lift it by two corners and gently pull it from the glass, attach it by pins or clips to a lath, and hang it to dry.

Drying. Tissue sensitized by these formulæ is practically independent of drying conditions, provided that it dries within a moderately uniform time, from four to six hours. *Gas in the drying room has little or no effect.*

In general working the tissue has been in the highest degree satisfactory, and very pleasant to use after working ready-sensitized tissue that had been kept in a box with calcium chloride. It is extremely soluble, dissolving very gently and easily at a temperature of 100 degrees; the backing paper is very easily removed after a few seconds' immersion in the developing tank, and there is not the slightest tendency to blister, nor break, nor to produce any mechanical defects even when development is very prolonged.

In almost all cases the tissue has been sensitized at night and used the following day, and no special precautions have been taken between drying and using, the tissue being simply put in an ordinary cardboard plate box. As an experiment, some was left freely exposed to the air for eight to ten hours after drying, and no difference could be detected.

As most of this work has been done during the present summer, the wet weather has been a severe test of the efficacy of the methods adopted, both in regard to drying the tissue and its after working.

Speed. Tissue sensitized by the solutions given is considerably slower than that sensitized in the plain potassium bichromate bath, but the gain in quality more than compensates for the loss of rapidity.

Although commercial tissues differ so much in speed when purchased sensitive, yet when sensitized on these baths they are all practically identical, excepting the new matt-surfaced tissues, which require only three-fifths of the exposure of the ordinary kinds. Black tissue will be approximately the same speed as Ilford P. O. P. when sensitized in bath A, so that if a narrow strip of this paper is placed along one side of the negative, it may be printed until the light tones are just as dark as required in the carbon print, and an actinometer dispensed with. Brown tissue will require rather longer exposure than this, about one fourth, and red-chalk

about one-third longer than black, or until the silver strip is dark enough for toning.

Formulæ B, C, and D yield a tissue slower than that produced by A, the proportionate exposures necessary being approximately A = 4, B and C = 5, D = 6.

Keeping Qualities. I have tested the keeping qualities of tissues sensitized on these baths, always sensitizing a piece in a plain solution of potassium bichromate, and keeping under identical conditions for comparison. The method of storing has been under the pressure of an ordinary printing frame—a method that would be effective with ordinary P. O. P. for many weeks. Ten days has been the test time, and although the results with some sensitizers have been superior to that given by the simple bichromate solution, yet in no case have the prints been so good nor so clean as on freshly-sensitized tissue. The "safe-edge" has always been degraded, and the prints poor in quality. The solutions containing ammonia have been the most satisfactory, though far from good.

A Most Serviceable Compound

Mogul repair compound is marketed by a local firm, and I believe, can be obtained in any of the principal cities. It is certainly worth going to some trouble to secure. One can take an ordinary box, however shrunken at the joints, and by using this compound—which is very thick—and unbleached muslin, first painting the surface and then putting on a strip of cloth; then painting again, and the next day adding another coat, make a practical tray or box that will hold any ordinary acids or alkalies used in photography and be absolutely water-proof.

In newspaper offices, it is customary to have the carpenter make trays and sinks. In such cases it is advisable to ask him not to use white lead in the joints and on the surface, but to use this compound for the joints, and two coats of Mogul photo varnish for painting; the second or third coat to be applied the next day. Should your sink be wet, having soaked for a number of years, and you wish to preserve it, the following is recommended: Allow the sink to become as dry as possible, and the next day spill a teaspoonful of benzine into the sink. The benzine will spread; set fire to it with a match (there is not sufficient to cause any danger, and it is always under control), and do this all over the sink until you have a fairly dry surface. Apply a coat of the compound, following it with a second and even a third coat of photo varnish the next day. If the sink is against the wall, and you wish to prevent dripping on the floor, use a strip of cloth and thick compound, applying compound first, then cloth, and again compound. On the floor and where the sink and wall join, there might be danger of water, acids or alkali leaking through to the next floor. Give the floor a coat of compound, and while fresh apply unbleached muslin, tamping it down with an ordinary brush. See that all white cloth is covered. Never use tacks nor nails. The kind of cloth to use is "Cabot W," "Herald R," or "Cabot A." Allow the cloth to lap an inch and a half, but between each lap be sure that it is well cemented with compound. The next day a second coat will make a perfect job. Care must be taken that the cloth and compound come up an inch or two around the walls and on the door treads. For the little corners and angles, set in small pieces, using the compound, as you might use paste or mucilage. You will find the cloth and compound very pliable, easily fitting any shape.

For sky-light repair, on the sash where the putty is cracked and perhaps worn off, put the compound and cloth on in strips, allowing the cloth to come on each side of the sash, covering the glass about a quarter of an inch. Over cracks or joints in the glass itself, a strip about an inch wide will stop the leak, caused by capillary attraction. Care must be taken that the surface is perfectly dry, as no serviceable material will stick to a surface that is damp, wet or greasy.

For making dark-rooms, use any kind of stout paper, coating it with the varnish. Where you have tacks or nails, use a little compound with cloth or paper to cover, and prevent leakage of light. In case a rubber tray is broken, apply compound and cloth, both inside and out; not forgetting the second coat the next day. Apply to holes in enamel-ware, cracks in china or glass-ware, making your apparatus last a very long time at a small cost. Metal trays can be repaired and kept from rusting as well. With a supply of this compound a shallow wooden box, made by your carpenter or your own hands, is all that is required for many kinds of work.

The Hawk-Eye Cameras

The Blair line is better than ever. This is the season that finds the man who has "been thinking about it," studying over the catalogues and critically examining the dealers' windows. Such an individual will be doing wrong in failing to investigate the merits of the various Hawk-Eye models. The prices are modest and the quality,—well, ask the first old-timer you meet what Blair Camera Company stands for, on a camera. You know what a certain name on a watch means. It means that you would willingly pay more for the watch so marked than you would for one bearing a name less known. You are not asked to pay more for a Blair camera; they will stand comparison with anything on the market. Look them up. Get a list of your dealer. Ask him to show them to you; he will be glad to comply.

The Bausch and Lomb Competition

Below we give a list of the various prize winners in this competition; a competition that in its scope and comprehensiveness could be equaled by perhaps no other lens-making firm in the world. While the conditions demanded that the negative be produced with the aid of a lens of their manufacture, or in certain classes, any lens fitted with one of their shutters, the wide popularity of the Bausch & Lomb productions made these conditions unnoticeable as in anyway curtailing either the quality or quantity of the work submitted. To have won a prize in such a competition is indeed a matter of which any one may be justly proud.

The photographic world has been anxiously awaiting news of the Bausch and Lomb contest, which closed a few days ago.

Prizes aggregating $3,000, payable in gold, were offered. The competition was open, no one being barred. Amateurs and professionals were invited to compete. The advances in the workmanship of the amateurs is attested by the fact that most of the prize winners were of that class, although the professionals made strong efforts to "land the money."

Grand Prize—Alfred Stieglitz, New York, N. Y., "The Street—Winter."

Class 1. First prize, Edouard J. Steichen, New York, N. Y.; second prize, Laura Adams Armer, Berkeley, Cal.; third prize, Arthur Hewitt, New York; fourth prize, Yoh Poulsen, Copenhagen, Denmark. Honorable mention—Mrs. Pocahontas Jacquemin, Kansas City, Mo.; Lewis D. Phillips, Cincinnati, Ohio; George W. Beatty, Columbus, Ohio.

Class 2. First prize, Mrs. W. W. Pearce, Waukegan, Ill.; second prize, Adrian Eugene Lundstrom, South Wales, England; third prize, "The Old Swimmin' Hole," Unknown; fourth prize withheld. Honorable mention—Mrs. Nancy Ford Coues, Covington, Ky.

Class 3. First prize, Myra Albert Wiggins, Salem, Oregon; second prize, Mrs. Nancy Ford Coues, Covington, Ky.; third prize, Thomas A. Morgan, Denver, Colorado; fourth prize, Walter Zimmerman, Philadelphia, Pa. Honorable mention—Miss Nellie Coutant, Crawfordsville, Ind.; H. G. Aitken, Syracuse, N. Y.; H. G. Ponting, Sausalito, Cal.; Arthur Hewitt, New York, N. Y.; N. Brock, Asheville, N. C.

Class 4. First prize, H. C. Myers, Boise, Idaho; second prize, Harry Coutant, New York, N. Y.; third prize, Theodore Eitel, Louisville, Ky.; fourth prize, Lewis D. Phillips, Cincinnati, Ohio. Honorable mention—J. H. Field, Berlin, Wis.; R. S. Kaufman, Wilkesbarre, Pa.; Arthur Hewitt, New York, N. Y.; Edouard J. Steichen, New York, N. Y.

Class 5. First prize, Joseph N. Pearce, Philadelphia, Pa.; second prize, Chester A. Reed, Worcester, Mass.; third prize, Arthur S. Blum, Chicago, Ill.; fourth prize, D. Vincent Smith, South Williamsport, Pa. Honorable mention—C. O. Wiesemann, Brooklyn, N. Y.; Mrs. A. L. Swartz, Junction, Oregon; C. S. Hale, Worcester, Mass.; Arthur Hewitt, New York, N. Y.

Class 6. First prize, Curtis Bell, New York, N. Y.; second prize, A. S. Goss, Toronto, Ont.; third prize, Frank Alder, Somerville, N. J.; fourth prize, Wilfred Emery, London, N. W., England. Honorable mention—Joseph N. Pearce, Philadelphia, Pa.; H. C. Myers, Boise, Idaho, "Mountain Cottage"; A. A. Gleason, Rochester, N. Y.

Class 7. First prize, H. G. Ponting, Sausalito, California; no other awards granted.

Class 8. First prize, Jos. R. Iglick, Rochester, N. Y.; second prize, Frank L. Silva, Brooklyn, N. Y.; third prize, A. A. Gleason, Rochester, N. Y.; fourth prize, James Trevor, Victoria, Australia. Honorable mention—Laura Adams Armer, Berkeley, Cal.; H. G. Ponting, Sausalito, Cal.

Class 9. First prize, Miss Nellie Coutant, Crawfordsville, Ind.; second prize, Fred Seckel, Cleveland, Ohio; third prize, E. C. Yauch, Rochester, N. Y.; fourth prize, W. F. Zierath, Sheboygan, Wis.

Class 10. First prize, Louis Fleckenstein, Faribault, Minn.; second prize, John H. Blackwood, Trenton, N. J.; third prize, C. A. Muller, New York, N. Y.; fourth prize, William H. Fisher, Baltimore, Md.

Class 11. First prize, William E. Blossfeld, Brooklyn, N. Y.; no other awards granted.

Aristo Porcelain Printing Frame

Some of the older men will remember the elaborate printing appliance that was offered the trade a number of years ago for the production of prints on porcelain. We all have admired the beauty of the results achieved in the hands of a successful worker of the process. The American Aristotype Company, ever alive to the best interests of its patrons, has perfected a most simple device that permits of the production of the same results on its popular Aristo Platino; in fact, the emulsion regularly used in coating this paper being practically the same as that employed in making the porcelain plates, little more than a complete knowledge of the requirements was necessary in order to suggest a method of meeting them. That this has been done there is ample evidence in the work so easily turned out by the users of their new Aristo Porcelain Printing Frame. With its aid the photographer is enabled to produce better porcelain effects than were possible on the porcelain plates.

The Anthony and Scoville Annual

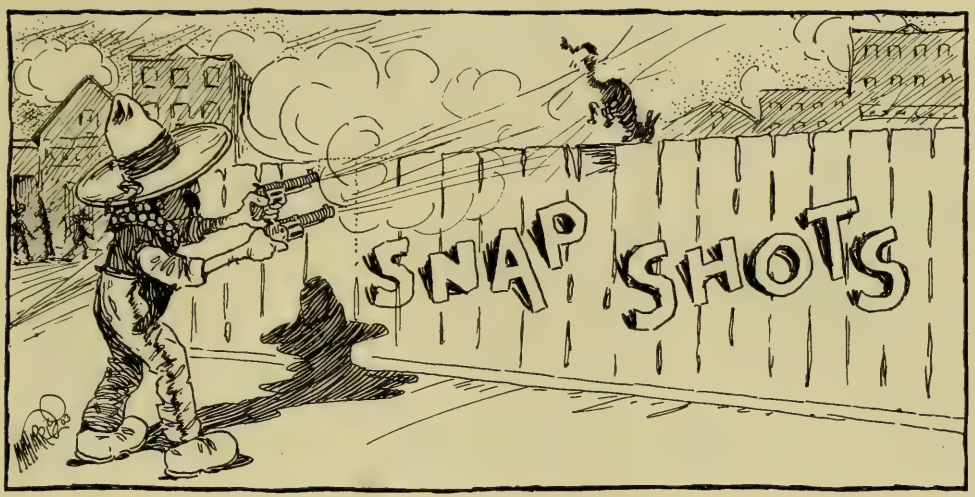
The *American Annual and Photographic Times Almanac* reaches us in its well-known form. While the list of contributors fails to contain many of the names we expected to find, the publication is truly representative of its kind. The contributors numbered have done quite well. The diversified opinions expressed make the volume most interesting. We advise our readers to secure a copy.

H. A. Hyatt's New Store

The firm of H. A. Hyatt have secured and are now preparing to move into a handsome new store where they will have larger quarters and greatly improved facilities for handling their orders and receiving visitors during the World's Fair next year.

After January first their address will be 316 and 318 North Eighth street, directly opposite the postoffice and in the very heart of the city. Their new store is light and commodious and in every way better adapted to the requirements of so extensive a business.

THE WHOLE "DOG GONE" FAMILY



Photographic Surveying

Photography has come to the aid of still another of her sister callings. In surveying, where the mountainous character of the country makes the ordinary method too expensive and time-consuming, the making of two photographs from different points with the after combining of them in a stereoscopic measuring machine, enables the exact location of any particular point to be calculated. A range of over five miles is easily secured, making the application of the method most expedient in the surveying of mountainous districts and such other localities as do not readily lend themselves to the ordinary methods.

Photography in the Trade Unions

From a New York paper we learn that the Cigar Packers' Union of that city has organized a camera corps whose duty it will be to collect evidence against members of trade unions who might thoughtlessly buy their cigars of non-union cigar stores and be seen coming out of such establishments complacently smoking the prohibited goods.

The Real Estate Man has a Camera

A New York firm has had some trouble with the lessees of many of their smaller holdings. Unless great exactitude has been displayed in the drawing up of the lease, the tenant is too often inclined to appropriate a little extra space as an addition to his cramped quarters. All dispute is now done away with by this particular firm. Mr. Lessee is told to go right ahead and put up his cigar stand and at its completion the premises are photographed; the resultant print being attached to and made a part of the lease. As the agent was heard to remark: "If Mr. Lessee tries to put any little balconies or extensions on this plant I don't see but we'll have him dead to rights."

Rapid Work in Printing

The publicity bureau of the Louisiana Purchase Exposition is using a great many photographs these days. A printing table that was constructed to fill the requirements of the heavy demand is quite a time and labor-saving device. What serves as the printing frame, is let into the top of the table with a well below containing a 500 candle-power electric light. Between the two, cutting off all light until required is a flap shutter which a spring holds in place. A sheet of developing paper is placed on the negative in the stationary frame, the lid which takes the place of the ordinary spring-back is turned down over it and the exposure made by opening the flap shutter with the foot and allowing the strong illuminant in the well below to act for the required second or two. Removing the foot from the lever operating the flap allows it to spring into place when the paper is removed and another sheet substituted. In operation it is much like an ordinary treadle job printing press. One of the young lady operators recently turned out 846 prints in one hour. Where but a few prints are required from each of several negatives, delay is of course caused.

Is Photography Guilty

A writer in the lay press has discovered that the enormous consumption of platinum in the production of photographic printing paper has greatly inconvenienced the manufacturers of commercial fertilizers. It all works out this way: In converting raw phosphate into plant food sulphuric acid must be used and platinum is the only metal that will resist the action of this acid. Platinum alloy retorts were heretofore used in the concentration of the sulphuric acid. These retorts until within the last few years could be obtained in Paris for from $8,500 to $13,000 apiece. At the present price of the metal, one would cost a fortune and it is all blamable upon the poor photographer. The discoverer of this deplorable state of affairs fails to realize that the use of platinum in the growing business of electrical construction may have something to do with the high price of the metal, and he also overlooks the fact that. if his statements are all true, the manufacturer of fertilizers has but to sell a few of his old retorts and realize an equal number of fortunes, allowing him to retire from his trying occupation.

The "Freak" Photographer

At this date when the wise ones are advising us all to specialize, it is perhaps interesting to note that there is a photographer in New York whose gallery is devoted almost entirely to freaks. As you gaze at the portrait of the bearded lady or the human pincushion, a glance at the bottom of the mount will tell you that they were both photographed by a certain studio just off the Bowery. Ten years ago this man had to seek out his patrons, often entering into a contract to accept a certain percentage of the receipts on future sales, as payment. Today his acknowledged ability in posing the various individuals who gladden the sideshow patrons is so well recognized that less effort is required to secure the business. It comes as does the business of the man who has made a specialty of handsomely-gowned ladies, and is seemingly almost as remunerative.

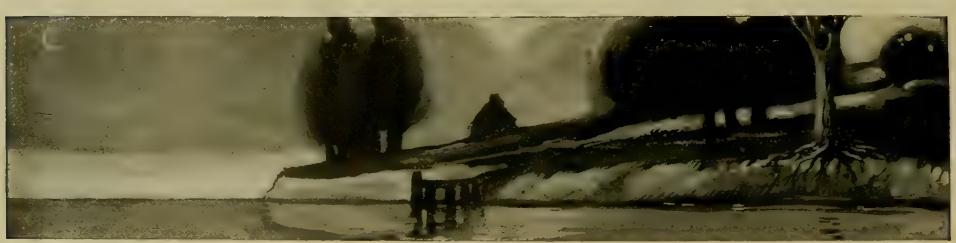
Photographing a Bullet in its Travel

An Englishman, Professor Boys, is the first photographer to perform successfully the feat of photographing a bullet moving at the rate of 3,000 feet a second; claims an English publication. As no shutter made is capable of making an exposure in such a fractional part of a second as the requirements demanded, he had recourse to a form of apparatus described as follows:

"He had a tube built which was free from light, and in the side of it he placed a very sensitive plate. In the tube was also fitted an electrical apparatus which gave forth a spark when the bullet severed a fine lead wire. The experiment was entirely successful, a clear picture being obtained, although the bullet was only exposed on the plate for the ten-millionth part of a second, the spark, in fact, not being visible to the naked eye."

Deep-Sea Photography

M. Louis Boutan of the School of Zoology in Paris has at last been rewarded with success after the conducting of endless experiments in photographing objects at some distance below the surface. Using a light of several thousand candle-power he has succeeded in photographing objects at a depth of 140 feet. The value of this can be understood better when we take into consideration the fact that the greatest depth yet reached by a diver was 200 feet. It is evident that, the method being practical, its usefulness in the hands of those interested in the work of divers will be great. M. Boutan expects so to perfect the plan that in the near future clear photographs may be taken at a depth of 300 feet.



Still Life Studies

About every third number of a photographic magazine must contain an article on this branch of photography. Every one of these articles must explain that a soft lighting at about the same angle as that used in ordinary portrait lighting should be employed. What is more, they all practice what they preach. I have just examined a number of creditable studies clipped from various sources within the last few years, and the only variation in the lighting is that it is sometimes from the left and again from the right. I do not approve of such a cast-iron rule. If you can make an effective portrait by working directly against the light, as on making what is called "line-lighting," why will not the same method give good results in a study of fruit, for example. Last week a print was sent me of a still-life composition in which a bit of statuary was the principal object. This same line-lighting gave a most charming effect. In flower studies would not the same lighting often prove effective? It would at least seem better to have the dark, detail-lacking leaves we so often see in such work, explainable by the lighting rather than have them stand out as monuments of the lack of manipulative skill on the part of the photographer. Sunlight is another thing we are told to avoid in this class of work. Just why, I do not see. Many flowers have petals whose delicate transparency can be brought out only by placing them in a light such as the authorities prohibit. Try doing it, as they forbid, a few times. Back your plate, give a generous exposure, and develop slowly, and I think your results will not be entirely lacking in interest. At least, give the matter a trial.

Another "Finder"

I dropped in on my friend one evening and what do you think he was doing? He had a drawing board laid across the seat of a high office stool, one of the revolving kind, and covering it with a piece of gray felt, had arranged upon it several objects intended to form a pleasing composition in still life. A lamp above and to one side gave the lighting. The entire thing was swung first this way and then that in order to determine the best angle at which the light could fall. The camera was arranged at the proper distance, but instead of viewing the dim inverted image in the ground glass, he had removed the camera back as well as the lens and was studying the effect of the different arrangements by looking through the hole in the lens board with the back of the camera pointed at the subject. He explained that the arrangement being determined and the angle of the light being decided upon, the whole thing was placed at the proper position near the window, and only the soft light coming through a small, white curtain in the otherwise opaque shade allowed to fall upon the subject. The exposure was generally made in the morning while the photographer ate breakfast. All the study and arrangement was made the evening before.

Pictorial Principles

This is the title of the last issue of the *Photo-Miniature*. It is indeed unfortunate that a book of such value is issued simply as a monograph and one of a series, even though that series be of such unquestionable value as is the *Photo-Miniature*. The author of this particular number is perhaps the best known and most popular writer on photographic subjects in England. Favored with an art training and no small measure of success in the use of the brush and palette in early life, turning to the camera as a method of artistic expression, he is indeed well fitted for the task which he so ably performs, as witnessed in the book before us. This issue at least should be in the hands of every camera user in the land. Far is it from my desire to imply that any single number is not worth many times the modest price; but while an occasional issue, owing to its specializing feature, may fail to appeal as strongly to one as to another, this number certainly can be studied with great profit by every user of the camera. Send in your subscription and insure the prompt delivery of the good things promised in the coming issues.

A Course in Photography

From letters I have received during the last few months I learn that no small number of my correspondents, particularly the enthusiastic ones who desire to improve, are enrolling themselves as pupils of the American School of Art and Photography. Not that these correspondents took the trouble to write me simply that they had so done, but they were brought to mention the fact either that they regretted not having had the opportunity years ago, or in commenting upon their gratification in finding the plan so simple, and the school so evidently interested in their personal improvement. To one who has known of Mr. Schriever's capabilities as demonstrated in his own success, the popularity of any method which he might father seems well assured. Photography certainly lends itself to mail instruction more readily than do a great proportion of the studies now so successfully exploited in that manner. The actual work is so easily mailable and so clearly indicates every phase of the pupil's progress that the work is made quite easy for instructor and pupil alike. Courses are so arranged that the tyro, the professional and the specialist can each be suited. Send for their prospectus; it will show you the difference between the work of the trained and untrained worker.

The Button Pusher

For my part, I can not quite understand why this individual has the contempt of the advanced worker and the dislike of the ordinary citizen so lavishly heaped upon his offending head. I will admit that he sometimes offends the ideas of his brother of longer experience and his enthusiasm often leads him to incur the dislike of his fellow man who has not as yet fallen victim to the claims of photography. Bear with him, do more—give him the credit that is his due. It is from the ranks of these same button pushers that our most creditable workers are graduating today. At the least, the button pusher is but short lived. He either gives it up or outgrows the practice. Encourage their multiplication in every possible way. It is the alluring promise which the fixed focus, "we do the rest" style of photography holds out, that has tempted many to try photography who would otherwise have hesitated at the difficulties so universally connection with it by the lay mind before the advent of the hand camera. This former conception allowed our art to appeal most strongly to the experimental mind. Today, another class is made to feel an interest in its possibilities. The change is decidedly for the better.

Intensifying and Reducing

About so often, I receive a letter asking if I would advise the attempt at reducing. or perhaps it is intensifying, of a certain negative. The writer invariably adds that he does not like to risk the negative as he is unfamiliar with the work. I do not wish in the least to discourage the writing of letters to this department for the reason that I do not get one tenth what I should like to see come this way, but the style of letters I have just mentioned are a little out of place. For ten cents one can get a supply of bichloride of mercury and for an equal amount, a quantity of red prussiate of potash. With these two and a few waste negatives he can get enough practice in a few hours to make him thoroughly confident in his capabilities and quite conversant with the

possibilities of both intensifying and reducing. The mercury is a poison and should be kept away from the fingers as much as possible, yet, if no cuts are present, is so easily rinsed off that it will do little harm. Make a saturated solution and label the bottle. It will not take much of the chemical as it does not dissolve to any great extent. If not a saturated solution, it will simply take a little longer for it to do its work. If there is much of the undissolved crystals in the bottom of the bottle it means that there is danger of pouring them out upon the plate. The solution can be used over and over as long as it works satisfactorily. Take one of your thin wasters and place it to soak in the solution. When the plate is whitened right through to the glass side, remove it and after a good wash immerse the negative in water and ammonia until blackened right through. The strength of the ammonia and water is immaterial; have it just about as strong as you can without making it unpleasant to work over the tray. A slight wash completes the work and when dry, a print will show what has been accomplished. Reduction is equally as simple. Put a crystal of the potash in a glass or graduate, add water and stir until the solution is a good straw color. Add some of this to a quantity of your regular hypo solution, such as you mix up for your plates. Immerse one of the dense waste plates in the bath so compounded and watch the result. If the action is too rapid it was because you added too much of the potash. If too slow after the negative gets well soaked, add more of the potash. This reducer gradually exhausts itself and constant addition of potash solution is required if much density or more than one negative is to be overcome. The same washing must follow as in the ordinary use of the fixing bath. The potash solution does not keep well but it is so easily prepared and so cheap that it does not matter. Master these two methods and then you can try the others if you think they will assist you. Other reducers act differently and are more suitable for certain cases. Some of the trade preparations work most satisfactorily. At any rate you will have gained confidence and knowledge at the cost of a few cents and a few waste negatives. Knowing that you have done this much for yourself, I will be only too glad to help you further if you will but write.

YOUNG SPARROWS BY WILLIAM S. RICE

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY
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IN ST. ANNE'S CHURCH, AURAY, FRANCE
Breton Women in their white caps
at services on St. Anne's Day
by WALTER ZIMMERMAN

CAMERA CRAFT

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Night Photography

By H. D'ARCY POWER, M. D.

In writing on the above subject, I intend to treat solely of the effects which are legitimately obtained by the conditions normally existing at night. Pictures by moonlight and starlight, by the parlor lamp, the lights of the street, or public illuminations will be the subjects of my theme. The field is a wide one and full of promise, and yet is almost wholly neglected by the average camera-worker. In the two following articles I propose to give such details as may be useful to the beginner, gathered from the writings of others and my own individual experience.

Photography by moonlight, parlor light, and street light demand separate consideration, but they have one point in common that is best dealt with in the beginning. All students of photography know the importance of correct exposure, but with the great latitude of modern plates and the more equable lighting of daylight, a considerable deviation from the normal may be indulged in without manifest harm. Not so with night photography where faulty exposure immediately tells, as I will endeavor to show. The great difference between the appearance of objects by daylight and night illumination, is in the feebleness of the latter—which is far greater than we usually recognize. Take for example a moonlight scene, such as the white building of our State Capitol in the full light of our satellite. Its walls gleam, the details of its architecture are manifest, and the casual observer remarks that it is as bright as day. Is it? Let us see. On the day preceding that moonlit night, with the sun in the same position in the sky, a good picture of the building could be taken at F/8 in one-hundredth of a second. To obtain a moonlight picture of the same would require an exposure of twenty minutes. Now $1 \times 100 \times 60 \times 20 = 120{,}000$. One hundred and twenty thousand times less bright than day is the answer returned by the photographic plate. The difference as measured by the eye may be less, because although the human retina and the sensitive plate are often compared, they really behave very differently. When the eye is persistently directed to a faintly illuminated object, it gains in sensibility for a short time and then tires and sees less and less. The sensitive plate, under like circumstances, first sees (records) nothing, but the longer it is exposed the more it records, and wheresoever there is any difference in luminosity, however small, it will show it if sufficient time be given. It will thus detect pictures quite unseen by human eyes; such as the stars that are invisible to the strongest telescopes, and in the case of our night pictures, if over-exposed, give results resembling those produced by daylight illumination. To sum up, as the

distinctive effect of moonlight (and to a great extent it is the same with the other night illuminants), is due to the feeble illumination, so if we are to reproduce that effect in our pictures must we be careful to expose the plate no longer than is necessary, or the result will simulate a daylight effect. In no other field is over-exposure so fatal.

Moonlight Picture-Making

How strange that a thing so full of charm should be so generally neglected. Moonlit meadows bathed in silver mist, weird pines o'erhanging a mountain road, the river swathed in the deep shadows of its tree-clad banks, the broad bay with its setting of silent hills; or, if these be too far afield, the smaller vistas of our public parks, and many a building, commonplace and unsatisfactory by light of day, will be softened into perfect beauty under the gentle radiance of the moon. All these things are ours if we seek them, and seek them rightly. If the

MOONLIGHT PICTURE OF THE CALIFORNIA STATE CAPITOL
BY DR. POWER

camera, used by day, has carried the photographer to nature, it will, when used at night, lead its votary to fairyland.

But, apart from the innate charm of moonlight studies, they have a very serious value to the student of photography as an art. Pictorial photography having no command of color is dependent for success on the handling of line and mass, and the most important part of the student's education is that devoted to the recognition of these elements in nature. Working by daylight the beginner, and often the expert, is constantly distracted by color effects and excess of detail; by moonlight these difficulties vanish. The reds disappear, the yellows fade, the greens become grays, in short, the colors that least affect the photographic plate are practically eliminated, and what the eye sees by moonlight the plate will

MOONLIGHT SCENE IN GOLDEN GATE PARK

BY DR. POWER

reproduce. Let the ordinary worker who uses his camera only by day take a moonlight walk over a well-worked field and he will find the key to many of his failures. Charming scenes that he was tempted to waste plates on, reduced now to line and mass and devoid of color, are instantly recognized as having no pictorial value; and it may well be that other scenes rich in these elements but heretofore lost in the crowd, will now stand forth as candidates for the next salon, and repay work on the morrow.

To pass now from the reasons why we should make moonlight pictures to the method of doing so, we have first to consider the moon itself as the prime factor. When does the moon rise, and how high does she rise, is always the first question to ask. All workers know that the length of exposure is inversely proportionate to the altitude of the sun. Much more so is it proportionate to the height of the moon in the sky. Now the trouble is that the moon is too often in this position at unseasonable hours, in the small hours of the morning, or after the sun has actually risen. What is wanted is a high moon between the hours of eight to twelve o'clock. Furthermore, the moon must also be not less than three-quarters full. It is the necessary coincidence of these three conditions that tends to limit moonlight work. In a general way these conditions are present in the late summer and early fall months, the period of the harvest moon, and as this is also the time of warm evenings and balmy airs, the would-be worker should be prepared to take advantage of them by having his subjects staked out; for be it remembered that two or three exposures is all that can be usually made in an evening. Let us now consider the class of subjects that are adapted to moonlight treatment. Moonlight differs from sunlight not only in its feebleness and color effects, but also in its lack of diffusion. Wherever its rays directly fall there is a soft equable illumination, and it is capable of a very long range of gradation.

Stretches of moonlit meadow, or river bank, white or light colored houses nestling among light foliage, have given me my best results. Recently a work was published in Germany on moonlight photography in the Upper Alps, and the work contained many beautiful pictures taken under these conditions. The seashore is also a good field. A bay taken from one end with moonlight on wave and cliff, affords plenty of scope; but it must not contain shipping on account of the movement. Of course, owing to the length of exposure, the incidence of light on the water and the breakers becomes generalized, but this does not rob the picture of beauty.

Having chosen our subject, the next point is to get it on the ground glass. Focusing is impossible; even the whitest of white buildings is too feeble to give an image for this purpose. Your camera must, therefore, be provided with a focusing scale (in which case do not forget to carry matches to read it by), or, as most subjects are taken at distances of more than a hundred feet, place a small brass-headed pin in the base-board of the camera, so as to mark the bellows extension for distance. While it is impossible to focus by moonlight, it is generally possible to see sufficient of the outlines of objects to enable the worker to correctly place the image. I rather think that this could be better done with an iconoscope finder, as in work in interiors I have found this to give a brighter image than the ground glass. Having got the picture on the ground glass, the next subject for careful attention is the stability of the tripod. In an average exposure of half

an hour, slight movements or saggings are very liable to occur with consequent double lines and loss of all our work. The tripod should be strong and each leg tested with the hand to see that it is firmly placed and not resting on a stone or other movable object. Bitter experience will teach the importance of this. A central weight suspended under the tripod is an advantage. It is useless to work with a smaller stop than F/8. In this class of work the anastigmat of large aperture F/5.6, or F/4, is a great advantage, reducing the exposure to one half or one quarter; and, as we are usually working on distant objects the loss of depth of field does not count. It is scarcely necessary to point out that the moon must not be included in the field of view. During the half hour or so of exposure it would have traveled across the plate and be represented by a black line. Nevertheless, if the worker desire to have the moon's image in the picture, he may easily include it. Take the picture without the moon, close the lens, then determine the position on the plate where the moon is to be, remove the plate holder, tip the camera until the moon is at the right place on the ground glass, return the plate

SHASTA AT NIGHT NEGATIVE BY WM. GOEGGEL

to the camera, and expose for two seconds. This last exposure will impress the moon without any effect on the rest of the image. A good plan is to mark the place where the moon is wanted by a pencil mark on the ground glass at the time the picture is first placed on the screen. This dodge is unobjectionable when the moon is low at the time, but if the moon be high and the subjects of low altitude, it would introduce false lighting. Speaking of dodges, it is permissible to point out that while owing to the length of exposure figures cannot be photographed by moonlight, it is sometimes possible to introduce them in a moonlight picture by a supplemental exposure with a charge of flashlight powder fired from behind some protecting object.

The snow pictures at high altitudes demand very short exposures. Over-exposure must be very carefully avoided, for the success of a moonlight photograph depends upon the preservation of gradation in the high lights. If we over-expose, the sky will become too luminous and the night effect entirely disappear. The long exposures are tiresome, but the wise man will take a friend along—when an hour's waiting in the moonlight can be quite pleasantly passed. As the shadow

detail is so weak in these pictures it stands to reason that development should be slowly performed with a weak developer. I know of nothing better than edinol, one quarter the normal strength. I can well believe that tank development would

FUJIYAMA, THE SACRED MOUNTAIN OF JAPAN, ACROSS LAKE SHOJI. EXPOSURE 50 MINUTES WITH F.11 ON A CLEAR MOONLIGHT WINTER NIGHT

BY HOSHINO SAN, SHOJI, JAPAN

yield good results. The ideal printing medium for night pictures is blue-black carbon. It is what I always work them in, and the tint of the night sky is very faithfully rendered. To those who cannot work carbon, a solio print, toned for blue-black, should give good results—especially if squeegeed wet on to a piece of mat celluloid and stripped when bone dry.

In conclusion, I should refer to the subject of shifting shadows. In the course of an exposure lasting from half to one hour, the shadows naturally change position. This is really no detriment to the picture, for it tends to modify the extreme opacity which is their characteristic.

Photography by starlight is possible but not practicable, and therefore will not be considered here. Next month I will deal with home and street photography under normal night illumination.

The Bugbear of Incorrect Exposure

How One Amateur Conquered It, and How You May do the Same

Should I give you an exposure table with a seemingly appalling array of factors and figures, followed by a few pages of directions as to their use, you would, in most cases, never make use of them; or did you give them a trial, your first failure would condemn them in your eyes simply because you did not fully understand their adaptability. For this reason I have thought it best to describe the manner in which the table I shall describe was evolved.

My first efforts at picture-making with a camera were made when exposure meters, scales and tables were not generally offered, if at all procurable. My lens was fitted with a set of stops numbered 0, 1, 2, 3, 4, and 5. Trouble followed. I soon discovered that correct exposure spelled a good negative, but getting the correct exposure was the trouble. About this time I came across a table in one of the annuals called Professor Burton's Table of Comparative Exposures. This seemed to cover the entire field, but I soon saw in order to use it I must know the correct exposure for some particular subject on some certain hour and day of the year. Nothing was said about the speed of the plate, and this made it confusing. Later, I found a short article in one of the journals in which a writer said that exposure tables were of little value; the only factors that could be employed to any advantage were the relative size of the stops. If F/8 required 1-16 second, F/11.3 required 1-8 second, and so on. I was then using a slow plate that was four times as slow as the fast ones I had started out with, so I hunted up a method of roughly approximating the F value of my stops, and then made out a card for use in the field, multiplying the exposures given in the article mentioned by four, which gave me:

STOP NO.	F. VALUE	EXPOSURE
Open Lens	8	1–4
0	11.3	1–2
1	16	1
2	22.5	2
3	32	4
4	45	18
5	64	16

I would here recommend the use of slow plates by the beginner struggling with this question of exposure. They are more easily developed and more clearly indicate in their behavior any excessive over or under-exposure; in this way one is not troubled to the same extent by doubts as to whether a faulty negative is the result of improper development or wrong exposure, as is the case when using the less easily handled rapid plates.

Returning to the matter of exposure: success with the card, as made out, gave me confidence and I again returned to the use of the fast plates. A column was added to the card showing that in using fast plates I should multiply by 1-4; medium, by 1-2, and slow, as indicated.

I invested in a new lens and shutter about this time, and its stops, or diaphragms, being marked with their F value, I discarded my column marked "Stop No." I also found that my card gave me over-exposure when I ventured into strong sunlight. I had been avoiding this strong lighting up to this time, feeling that it was the cause of the soot-and-whitewash effects that were so objectionable to me, but learning better I lost my fear of it. Trying to make these factors apply as did the others, that is, as regular multiples, I added a new column to my card which read "strong sun, ×½; weak sun, ×1; no sun, ×2." This worked better, but as I narrowed down my chances of error, I learned that the distance of the subject from the camera also influenced the exposure. In attempting out-door portraiture I found I required much longer exposure than was sufficient for landscape work. In open landscapes, where the foreground was well back, I found I could give half the exposure required for those with foreground and shadows closer at hand. An entirely new card was then made out with these new factors added, in a somewhat crude form, no doubt, but I was gradually eliminating my chances of error, and correct exposure had grown to be the rule instead of the exception.

The column heading *exposure* was changed to read *multiple,* as its figures proved to be simply the multiples to be employed for the stop values in the other column. Arranging this column according to this idea gave me a hint that by placing the various factors in the other columns in the right position so that like multiples came on the same line, I could dispense with all my ×½, ×1, etc., in the plate and light columns and use the one set of figures in the new multiple column for all the factors. This gave me a card as follows:

LIGHT	STOP	MULTIPLE	PLATE	DISTANCE
.....	8	¼	Fast	100 yards
Strong Sun	11.2	½	Medium	35 "
Weak Sun	16	1	Slow	15 "
Overcast	22.5	2	.....	8 "
Very Dull	32	4	.....	4 "
.....	45	8	.....	.....
.....	64	16	.....	.....

I ran across this Table of Comparative Exposures again and noting the different exposures required for different months of the year, I tried to incorporate it into my table. Trying to simplify matters by substituting the first few letters of the alphabet for the different exposures of an approximate length, I saw that my A, or shortest exposures, lasted through several hours on days in June and July, whilst January and December only contained my C, D, and E, or the longer exposure times. This, I saw, was connected with the length of the days which again corresponded to altitude of the sun. I made my A exposures indicate an altitude of 60 degrees or higher, B, 45 degrees to 60 degrees; and so on down the column. Experience, old records of exposures, and this table of Dr. Scott's, all helped me finally to arrange this column to my satisfaction, getting the various altitudes opposite the right multiples in the central column. I also found that I required dark in non-actinic colored objects in my near subjects to make the table hold good, and this column heading *distance* was changed to read *subject.* When the

THE RIVER FROM BANKER'S GLEN
by W. T. GRACEY

old card became so confused from frequent alterations and erasures that a new one became necessary, it was made out as follows:

SUN'S ALTITUDE	LIGHT	STOP	MULTIPLE	PLATE	SUBJECT
.....	.....	.....	1-16	.....	½ mile, Sea and Clouds
.....	.....	5.6	⅛	Fastest Developed for under-exposure	¼ mile, Seascapes in shore and bird's-eye views
.....	.....	8	¼	Fast	100 yds , open landscapes, shipping in shore, etc.
60° up	Strong Sun	11.2	½	Medium	35 yds., landscapes with trees or shadows
45°-60°	Weak Sun	16	1	Slow	15 yds., dark,non-actinic, heavy shade, close in
30°-45°	Overcast	22.5	2	.....	8 yds., heavy shade, close in
15°-30°	Very Dull	32	4	.....	4 yds., portraiture in diffused light
.....	.....	45	8	.....	Portraits indoors. Interiors well lighted
.....	.....	64	16	.....	Interiors not so well lighted

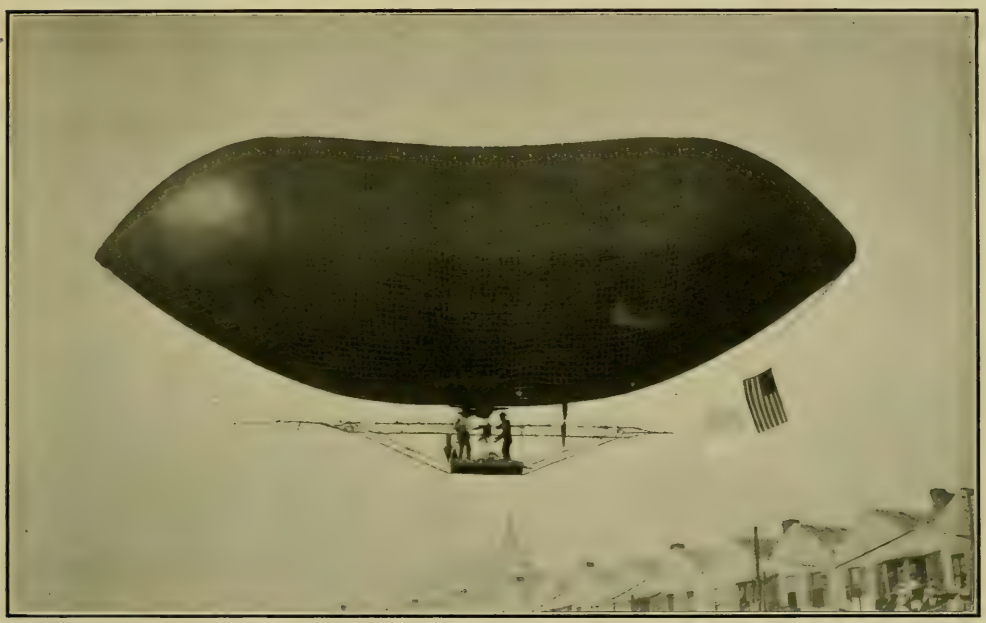
As an example of the applicability of the table as perfected, let us suppose a few possible conditions: Sun about 50 degrees up, casting faint shadows; stop F/16; fast plate; group about 25 feet, and in shade of building. According to the table we will have the following multiples for these varying factors: 1, 1, 1, ¼, and 2; which by multiplying together, which we can do at a glance, gives us ½ second as the correct exposure. Another example will suffice: Sun about 20 degrees up, but strong; stop F/22.5; fast plate; ordinary landscape without much shade, except the long narrow shadows which we wish well rendered. These factors give us a new set of multiples, viz: $4 \times ½ \times 2 \times ¼ \times ½$ or ½ second. I think this is about as simple as the matter can be made. The little mental arithmetic required can be accomplished by a child and one could hardly set a series of pointers in much less time.

About the only variation that I have since found not fully arranged for is the one owing to the light being weaker, even with the same altitude of the sun,

"WE TWO" BY EDWARD D. WHITNEY

in winter than in the summer months. This I easily allowed for, crediting the sun with a few less degrees than his position entitled him to during these winter months. In fall and early spring, ten degrees, and near mid-winter, fifteen.

Individual workers can easily change this table to suit their own particular ideas and methods of working. One of my friends makes a practice of giving the sun a few more degrees in summer instead of less in winter. Another has changed the light factors to read ½, ¾, 1 and 2, instead of as in the table. Still another worker, would, with different ideas as to results desired and perhaps using a different developer, call this last individual's sun-lit exposures over-timed, and those



THE GRETH AIRSHIP GOING AHEAD BACKUS STUDIO, PHOTO

made with over-cast sun under-timed, and vice versa. For this reason no hard and fast rules can be laid down.

There being no intermediate factors for all the shades of variations in conditions, which have been ignored for convenience, the table cannot be absolutely correct; but, when using the entire five factors, possibility of serious error is reduced to a minimum. One could hardly over-estimate more than one of the factors, and slight error in one would not influence results greatly even should it not be balanced by one or more small errors in the opposite direction in the others. You must bear in mind that a yellow light, such as is sometimes met with near sunset, is much slower than it appears to the eye, and that sunlight shining from behind clouds, or dense atmosphere, and striking the clouds in the opposite sky, is often reflected so fully as to be nearly as strong as direct sunlight. A little study is required with the most mechanical process that can be devised; hence, I can only ask you to give this scale a little thought before discarding it as worthless, assuring you that at least one amateur has found it a complete success.

Collecting Sea Weeds with a Camera

By William S. Rice

With photographs by the writer

The photographing of wild flowers and trees in their native haunts is a subject in which I have been greatly interested for several years; and the thought occurred to me last summer, as I strolled up and down Moss Beach at Pacific Grove, to make a collection of photographs of the beautiful sea weeds the tide washes up on the clean, white sands.

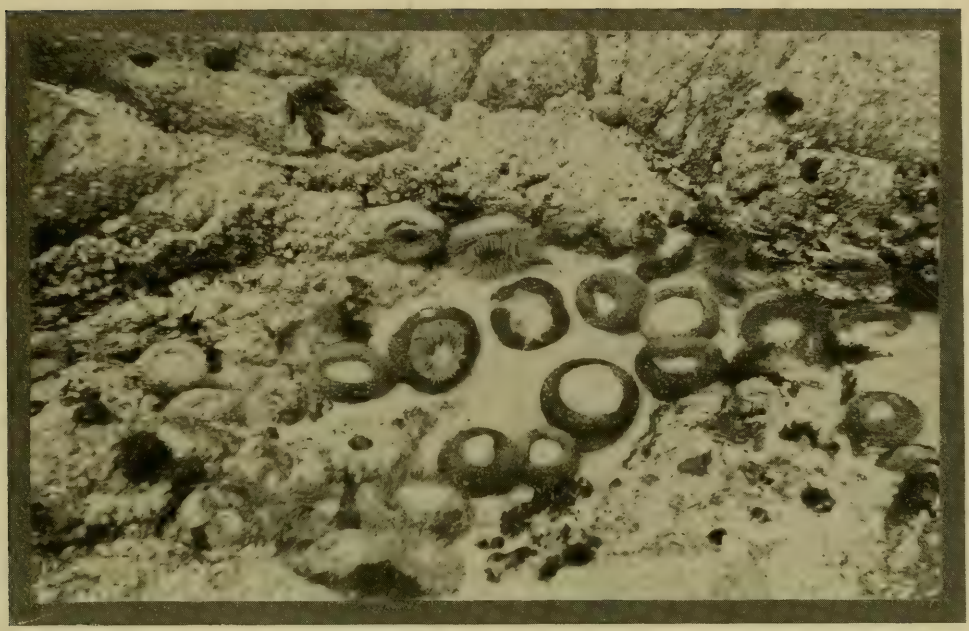
The idea did seem novel and I began to think and plan after I reached my lodgings that afternoon how it might be accomplished. The question of back-

SEA WEEDS WASHED UP BY THE TIDE AT PACIFIC GROVE

grounds perplexed me not a little but I finally decided that I could make no improvement on Nature's background—the clean, smooth, white beach. As the beach sloped considerably at places it seemed reasonable to think that I could, by tilting the camera and pointing it downward at an angle of 45 degrees and by firmly anchoring the tripod in the sand, obtain what I wanted.

On experimenting with the apparatus I discovered that it needed the assistance of a small stake driven into the beach to anchor the rear leg of the tripod which had an annoying habit of "bucking" with very little pressure upon the camera. This disagreeable feature was overcome by tying it to the stake with a piece of twine.

The day selected was a slightly foggy or hazy morning in July, and the exposures were made between 9:30 and 11 o'clock. The plates used were isochromatic and the exposures were one-half second with stop No. 32.



The sea weeds or kelp were in all sorts of fantastic shapes and colors, in which olive greens and sienna browns predominated; but occasionally a tuft of brownish crimson enlivened the sober colors of the curious growths from the gardens under the sea.

There was one plant which looked all the world like a lady's feather boa; another resembled a great green onion with a snaky tail at one end and a bunch of ribbons at the other.

Another specimen appeared like a long rubber hose with little green bulbs and branches of feathery moss at intervals of twelve or thirteen inches along its length.

One plant in particular interested me greatly. It resembled a long rubber tube with short streamers of green ribbon dangling from it. Still another curiosity was a cluster of stout stems with tops similar to a great bunch of ribbons.

The work of photographing these subjects was exceedingly fascinating, so finally I became more ambitious and climbed out upon the rocks left bare by the tide. There were beautiful little aquariums in the hollows of the rocks—sea gardens indeed, teeming with animal and vegetable life.

LABOR VS. CAPITAL BY HUGO GOLDSMITH

The sea anemones, by the way, are not flowers at all but simply ingenious little animal traps for entangling unwary victims in their clutches.

There were anemones in every conceivable stage, some wide open like a flower and others partly contracted and filled with sand. A gentle touch against one of them caused the numerous rays to close rapidly like the petals of a flower, sometimes ejecting a thin jet of water. The tide coming in slowly ruffled the surface of the pool at times so that I feared the subject would not photograph to advantage.

After the camera was focused and the tripod securely fixed in the rocks I watched and waited with bulb in hand until there was not the slightest movement noticeable when the exposure was made in one fifth of a second with stop 16.

It is a source of keen regret that the camera is not able to reproduce the varied colorings in these sea plants; for while the growths are exceedingly interesting and curious in form the coloring is quite as attractive as any other characteristic.

Method of Manipulation

By Richard Hines, Jr.

There is no doubt in the mind of the more advanced amateur who has been along the road, that many of the pitfalls into which his younger brother stumbles are brought about by a lack of attention to method in photographic manipulation. The amateur who is in photography for pure love of it, and not what he can make out of it—and I account myself one of the former class—is ever ready to give the benefit of his experience to his younger co-laborer traveling along the same paths that he has trod. The oft-repeated advice has been given time and again that success is best secured by sticking to one developer and one plate, until the temperament and characteristics of both are thoroughly mastered; but even this good advice cannot bring success if there is no method in the compounding of your developer, or the handling of your plate after you have the latent image thereon.

There are many of us who remember the various ways in which we have been told to compound our developers—so much sulphite, so much carbonate and so much pyro, most of the ingredients to be measured on the point of the knife or in a mustard-spoon, which we were told would hold about six grains of pyro when heaping full. Then don't we remember of the varying and wonderful effects we got on our plates—no two the same color, some dense till they could not be seen through, and others so thin they would scarce make a print, and all the time we "cussed" the manufacturer of the chemicals, the plates and the paper to the satisfaction of our vexed souls. For eighteen months of my photographic career I plodded along under the firm belief that my mustard-spoon full of pyro was close onto six grains. One day it dawned upon my co-worker that it would be a good thing if we got a pair of scales to weigh our chemicals. Then came the disclosure that our mustard-spoon, as we had been filling it, had to be filled about four times to get the necessary twelve grains of pyro that our formula called for. Thereafter all confidence was lost in the man who had given us the mustard-spoon information, so far as the weight of chemicals was concerned, and from thenceforth to this good day there has never been a formula compounded in my dark room that all the ingredients were not as carefully weighed as though an experiment in analytical chemistry was about to be made. Then when things go wrong there is some possibility of locating and curing the trouble.

There are enough troubles to beset the pathway of the plodding amateur without adding to them the "rule-o'-thumb" method of compounding developers, toning baths and the various other solutions. Amateurs are not the only violaters of these well-proved suggestions, for I know professionals who compound their toning baths and developers by the "rule-o'-thumb" method and to the careful observer who knows anything about such matters this method of work, or rather this lack of method, is at once noticeable in the varying tones and densities of prints and negatives. Photographic manipulations are based upon chemistry and chemistry is an exact science, so that the compounding of solutions in the same manner each time and the working of them at the same temperatures will invariably give the same results without fail, so that if the same result is not attained the trouble

AN EARLY MORNING STROLL
by EDWARD D. WHITNEY

can be looked for in another direction than the compounding of the chemicals. Expert chemists know that various samples of various chemicals vary at times, and professionals know that one batch of plates from the same factory will differ in manipulation from another batch of another emulsion from the same factory, but such differences as these are hardly to be taken into account by the average amateur. In galleries where plates are used by the case, such differences are apparent; in the dark rooms of amateurs, where plates are used mainly by the dozen, they are not.

The amateur should also remember that temperatures always play a very important part in photographic manipulations, and many of these temperatures can best be ascertained by the amateur for himself; but let him remember that the experience of others is, that in development the best results are obtained with a temperature between 65 and 75 degrees Fahrenheit. Some manipulations require lower temperatures, others higher, even to the point of boiling, but these are all to be found in directions given in handbooks for that particular process. In the absence of any better information, the amateur will find it safe to follow the directions given by the manufacturer of the particular product he is handling, whether it be paper or plates.

Another thing that is a fruitful source of trouble to the young amateur is the lack of cleanliness—not soap-and-water cleanliness, except for hands and towels, but chemical cleanliness for dishes and trays. I have found it well to see that every tray and dish is given this chemical cleanliness before it is put away after use. I have found water slightly acidulated with either nitric or hydrochloric acid to be a fine thing for this purpose, and since I have adopted this method of cleansing dishes and trays I have no trouble from a commingling of chemicals in the solutions that had no business there.

I have no doubt there are scores and scores of amateurs who know all these suggestions that I have made, who have found them out just as I have. But how many of them are there who put them into their actual daily practice. It is this adoption of the right methods in your photographic manipulations for which I plead. They are little things in themselves, but it is the little things in life that make for the success or failure of our efforts. If photography is worth doing at all it is worth doing right. Those who are just beginning to tread its highways and byways that lead into the beautiful in Nature and Art will do well to get started right, to adopt right methods, and then success will come to them all the quicker, and their new-found mistress, Photography, will more surely unfold to them her mysteries and her beauties.

A Photographer Goes A-Botanizing to Yosemite

By Edward Prescott

Illustrated by the writer

While lowland harvest-fields of the San Joaquin valley were browning and sweltering under the scorching rays of the early summer sun, and the wild-flower pageant was retreating step by step farther up the Sierras, two naturalists were seized with the desire to hie themselves away to these mountains, where they knew that the vernal season was just in its infancy and that spring blossoms still lingered in the lap of Summer.

Occupying comfortable seats in a Yosemite-going stage, which whirled them rapidly through orchards and vineyards, they soon left behind them the level of the great valley plains, with their oaks and harvest-fields, to enter the chaparral-covered foothill region, where the blue oaks meet the buckeye and the Sabine's pine, that picturesque, long-needled outpost of the great conifers.

A 5x7 camera, tripod, plateholders, and enough isochromatic plates on which to bring home the entire flora of the Sierras, were anchored under the seat by a stout piece of twine, so that no part of the outfit should be found missing when the time came to use it. This once happened to the writer after he had tramped for half a day over the mountains loaded with a similar outfit, and when he set up his tripod to make an exposure he discovered to his chagrin and disappointment that the detachable screw to his tripod had been left at home. But the Photographer decided not to take chances on this trip, consequently his eyes were

CALIFORNIAN AZALEA (RHODODENDRON OCCIDENTALE)

GROUND IRIS (IRIS MACROSIPHON)

repeatedly directed under the seat to see whether there was "anything doing" whenever the stage made a sudden jolt or swung recklessly around some sharp curve.

Between moments of strenuous anxiety as to the safety of the plates, etc., visions of the beauties to come flitted past when the two caught flashes of crimson, yellow and blue, and exclaimed enthusiastically over each new flower, and felt eager to dismount; but stage drivers are usually "trying to make time," and so they consoled themselves as best they could with the thought that at their journey's end they would find the same treasures.

As the stage continued through the regions of yellow pine and the great sugar pine and finally reached the towering and majestic firs of the mountain tops, in fancy the naturalists pictured the mighty rush of the great waterfalls, leaping out into infinite space, and the emerald meadows spangled with innumerable blossoms of vivid hue, kissed by a thousand babbling rills. In imagination they saw great snow-capped granite crags sheltering the balsamic fir and pine woods, where, as of old, an invitation in sweet-toned melodies beckoned them onward to the enchanted land. Such were their dreams which would be realities on the morrow.

At last the stage came to a standstill in the most fascinating spot in the Yosemite, where great granite walls towered over half a mile skyward, where pleasant green meadows with myriads of lovely blossoms nestled amid the lush grasses, and soft, pine-needle carpeted woods lay all about. Anon, the soft gurgle and trickle of the coldest and clearest of mountain streams made music for their ears, which, with the faint murmur of the pines, hushed them to sleep with its soothing lullaby.

This, then, was to be their camping place, and they could scarcely await the morrow to begin their exploration of the forest glades. The first light of

YELLOW LUPINE
(Lupinus Arboreus)

Many of the ferns in the foreground were just touched by a ray of light

breaking day illuminating the roofs of the tents awoke the Photographer, who concluded that to be up and doing was the order of the day.

A charming group of cedars (Libocedrus) with their tall, fluted, cinnamon-colored trunks, rising like pillars of Greek temples in the aisles of the forest, caught his eye as he walked a few rods east of the camp to take a time exposure.

This seemed a new world for the Photographer, filled with awe and reverence for these giants of the primeval forest, as in fancy his mind traveled back through the centuries which these trees have seen. He thought of the summer's heat and winter's cold and storm that have passed unheeded over their heads, and of the successive races of men and animals that have passed beneath their evergreen boughs.

While he was thus musing, a friendly pat on his shoulder startled him from his reverie; his friend, the Professor, had stolen a march upon him and had been tramping abroad at least two hours ahead of him. The distended sides of the Professor's corpulent "field press" bore evidence of his early morning's work in collecting and pressing specimens.

And now began days of the most delightful wandering through these charming forests where the life-giving air sent their pulses leaping, and the majestic trees and foliage lured them upward to almost inaccessible crags where were often found the rarest and most exquisite blossoms and ferns.

Surely the streams too in this wondrous region were a never-failing source of delight to the naturalists—not only because the wonderful rush and gush of the cascades and rapids had an endless fascination, but because of the tangled thickets which so often lined their banks. Gleaming among these thickets for miles and miles, almost obscuring their glossy green leaves, were the magnificent clusters of white and yellow mottled stars of the Californian azalea (Rhododendron occidentale) which filled the air with their spicy perfume. Here also the common yellow monkey-flower (Mimulus luteus) and its sticky relative (Mimulus glutinosus) hid away shyly among the alders and azaleas.

The early morning was selected for photographic studies of the azalea—a morning on which the air was still. After focusing sharply upon the main group of blossoms to be included in the composition, the lens was stopped down to 32 until all portions of the clusters were brought out clearly and distinctly upon the ground glass; then waiting patiently with bulb in hand, until not a zephyr stirred either leaves or petals, an exposure of 1-5 of a second was given the subject.

The woodland glade near the Happy Isles furnished the Photographer with innumerable subjects for his lens and sensitized plates; owing to the gloom which pervaded this bit of bogland a time exposure (stop 16) lasting from eight to ten seconds was necessary to give satisfactory results. Many of the ferns in the distance were in a soft, diffused light, but the most prominent group in the foreground was just touched by a ray of light which filtered through the foliage overhead and relieved the composition of monotony.

Out in the meadow plant life was rife and in this great flower show the two naturalists met many familiar faces seen weeks ago in the home fields of waving grain: larkspurs, orthocarpuses, brodiaeas, daisies, gilias, lupines, poppies—many of them of the same species as those which grew near the coast, others of different species but sufficiently similar to be recognized as near of kin. Besides these, there were other prime favorites unfamiliar to their eyes.

Out on exposed slopes, in spots where it seemed the soil was too rocky and dry to sustain life, the Mariposa lilies lifted their wonderfully-marked chalices to the fervid sun. Curious little flowers, called pussy's paws (Spraguea umbellata), interested the nature lovers very much, and indeed it is a curious plant. It is quite low, and the blossoms have an odd way of bunching themselves so that they resemble the cushions of pussy's feet, and this resemblance is enhanced by the tinge of flesh-pink seen through them.

Of all the wild flowers in the Yosemite, there is one in which every traveler is interested, be he a botanist or a layman, and that is the curious member of the heath family, known to all tourists as the snow plant. It is one of those curious organisms like the fungi, which seems to subsist upon decaying matter. There is no green foliage, but the stiff, asparagus-like stem is clothed with rigid scales which are a pale flesh-color near the ground, but farther up they assume the same brilliant crimson as the flowers, and then merge into floral bracts which curl gracefully about among the crimson bell-shaped blossoms.

The Photographer found several specimens on his way to Glacier Point, and an excellent study was obtained of one. Owing to its deep red

color, a sheet of white blotting paper was placed behind it in order to relieve it from its surroundings.

The photographing of wild flowers in their native haunts is a field of operation in which there is less excitement than in that of portraying wild animals, but the enthusiastic Photographer and the Professor found plenty of exciting experiences on the edges of slippery rocks and by rushing torrents. The photographing of flowering shrubs was found to be comparatively easy, but when a composition like

AT THE FOOT OF THE RAPIDS BY W. T. GRACEY

the ferns or the ground iris (Iris Macrosiphon) formed the subject for portrayal, considerable difficulty was experienced. The ground iris seldom rose higher than twelve or sixteen inches above the ground, and the blossoms were continually swaying on their wire-like stems.

Focusing at so low an angle, and the wind—that enemy of the botanical photographer—were the two main forces to contend with; so taking every drawback into consideration, the naturalists had all the excitement they bargained for, and returned from their outing not only rich in photographic studies but likewise in experience and pleasant reminiscences.

Specialism

Advice for the benefit of the budding amateur is perhaps plentiful and varied enough, but as I hope to be able to give good reasons for the faith within me, and to cite a few examples in proof of the success to be obtained by an adherence to that faith, I believe that in adding my advice to the supply already so abundant, I will be acting less ill-advised than would at first glance seem the case.

The average amateur of a few months' experience succeeds in accumulating a stock of negatives amongst which may be found, perhaps a couple of good figure studies, one or two passable portraits, a few good moonlight effects, a still smaller number of pleasing street scenes, flashlights that are horrible examples, attempts at surf photography, and if he has been a good customer of the plate-maker, he may have as many as a dozen good landscapes to show for from five to ten times that number of plates exposed.

This same average amateur, when he is not wasting his time and money in experimenting with new developers, new papers, and new processes, is flitting from one class of subjects to another. Today, it is flower studies, and he must have color-sensitive plates which he does not know how to handle to the best advantage, color screens which he does not use with the discrimination required, backgrounds and accessories which only experience will allow him to use intelligently; all this, and only to give up the whole thing for a new class of subjects a little later.

He rushes away to some seaport town on his annual vacation, equipped with a long focus camera, large finders and a rapid shutter to essay surf and yacht photography. He obtains a few results that seem to him satisfactory. He has wasted time, plates and money, only to find later that his best does not compare with the regular work of the man who has made this class of work a specialty. He shows with pride the best of his series to a yachting friend who gives it but a glance with the remark that "it was taken from the windward side; it would have been much better from the other side."

He runs up to the city during some convention or festivities, and, with a hand camera chosen for the occasion, recklessly exposes roll after roll on street scenes, decorated buildings, arches and the like. The results, to his urban eye, seem as great successes as did his yacht pictures to his non-nautical optic. The same evening the papers come out with reproductions from photographs made by their own photographers, employed at twelve dollars a week, that entirely eclipse his cherished productions.

He accumulates lenses, cameras, flashlight machines, enlarging boxes, lantern slide outfits, and any quantity of smaller items that the taking up of these various branches require, only to lay them aside as some new fancy strikes him. Time is spent, material wasted, and that most valuable commodity, experience, is thrown away after having been dearly bought.

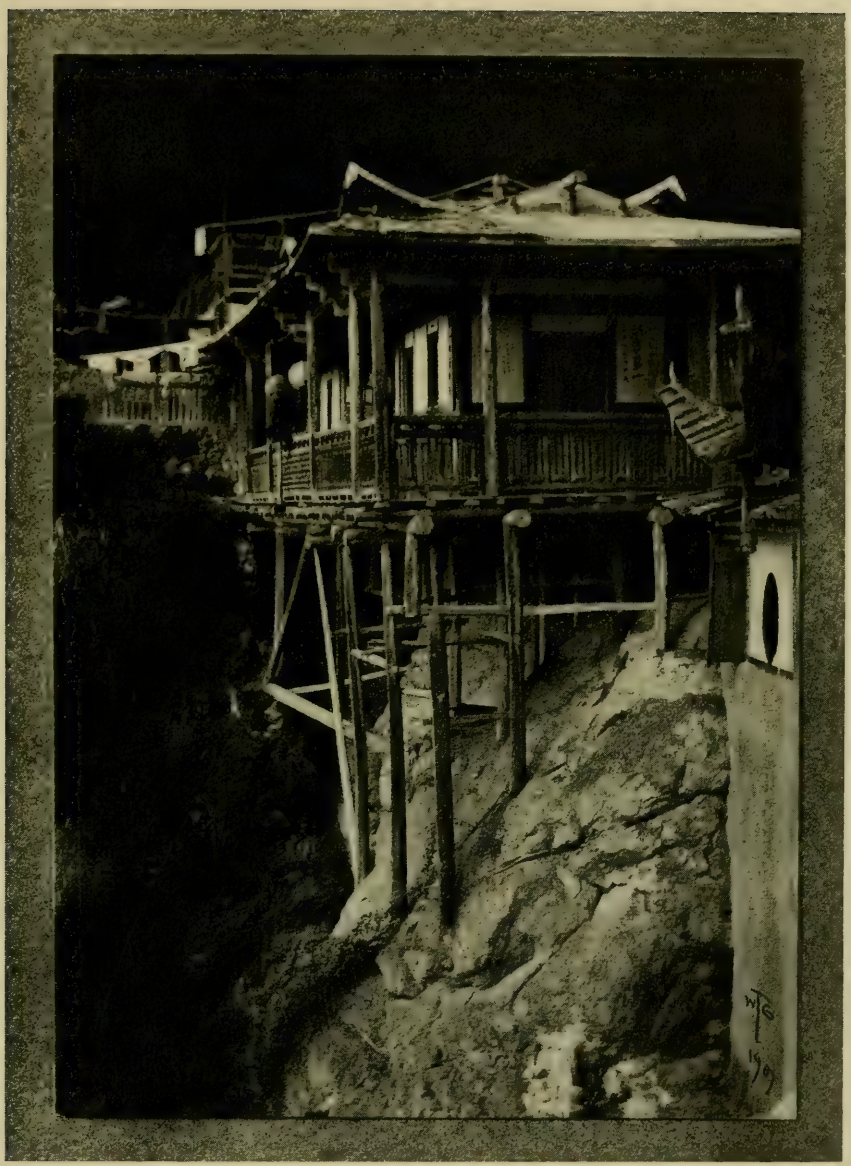
Let our "average amateur" turn his attention to one particular branch of our art science and all this is changed. There is not the same needless expenditure for material or appliances to be wasted or discarded later. There is no experience gained that is not put to some use which will justify its cost. Every plate exposed helps to make each following plate a better negative. Every lesson learned can be applied; every article on the subject that is read will have its value, and practice

will give him that command of the minor details which allows the worker in any particular branch of the art to give more attention to those points which experience has taught him require the most.

To cite an example, we will take the case of an amateur friend, in an eastern city. After a year or two of aimless work he became imbued, through the forming of an acquaintanceship with a member of the local historical society, with an idea of the value of a good collection of views of the historical buildings and the like, of his native city. The secretary of the society furnished him with a list, and as his efforts were well directed and persistent, every advantage was placed at his disposal. To-day he has a set of negatives that are almost priceless. Some of the buildings have been destroyed, their surroundings altered, or their appearance changed. Certain buildings were found to take on more character when the ground was covered with snow. Others were so hidden by the trees that only the bare boughs of winter allowed their most impressive aspect to be photographed. Others, again, seemed to demand the effect of summer's sunshine and the cool shade of the trees which surrounded them. One building in particular, was found so situated that it could only be photographed to the best advantage at a certain hour during one short portion of the year. It was so situated that the rays of the sun only reached its front for a short time in the morning during a single week in summer, and the cast shadows were needed to throw out the particular style of the ornamentation of the front. His set of views are in great demand, it is needless to say. There is little danger of any one of them being improved upon, because each subject was studied under various conditions of light, atmosphere and season, and trial exposures made. New negatives are constantly being added to the collection and the work has become a study as well as a pleasure.

Another amateur of my acquaintance has made a specialty of photographing the animals in the local Zoo. From a camera fiend that was at first permitted to use his camera within certain limit, he has become a favored one in the eyes of those in power and every facility is at once placed at his disposal whenever he desires to add to his already large collection of animal studies. Every collection of animals visiting his city is at once inspected for promising subjects, and his services are always in demand by those in neighboring cities interested in animals. Opportunities are placed at his disposal that would never be offered to him were his results less successful, and not so well known. Magazine writers are constantly demanding series of prints, and illustrated publications are always on the watch for good additions to his already large and complete collection.

The isolated worker has an inviting field. Who can estimate the value of a really good and carefully studied out set of pictures portraying village and country life of any particular section of our country? Take the stony, hillside farms of certain of the New England States, and give us pictures of their roads and brier-grown fences and walls; the old orchards and the corn and punpkins. Give us the characteristic Yankee farmer as he stops his wagon alongside the fence to talk politics with his neighbor; the corn-husking, the hog-killing, the grain-cutting, the cider-making, the brush-burning, and the like. Let us have the horses at the rude trough of water, the cows as they come to the milking yard, the wobbly calf, and the frisky lamb. Portray the soap-making, apple-drying,



YUNG FU MONASTERY
by W. T. GRACEY

and like scenes of domestic thrift. Picture the hollyhocks at the back door, the lilac bushes along the north fence, and the sunflower sentinels in the garden. There are subjects without end at all seasons of the year. Get the good will of your human subjects; show them an occasional reproduction in the journals, and you will find yourself more and more appreciated, and your efforts still more ably seconded.

In taking up any special line of work one will be surprised at the way in which new subjects will suggest themselves and material multiply as their taste becomes more critical, and they will find their work in demand. Do not take my word for it. Write one of the large manufacturers of stereoscopic lanterns and supplies and ask as to his desire to obtain such a set of negatives as I have outlined. He will give you a good idea as to the value of such a collection if it be good. Poor work is not in demand. He could send a man to secure the pictures but it would not result in the same class of work so easily possible to the man acquainted with the subjects. The latter, also, has the advantage of being on or near the spot at the right seasons to cover the full possibilities of the situation. His familiarity with the location allows him to readily locate the most desirable situations and settings for his pictures amongst the limitless array that even a small district will furnish. Study the charm that lies in Eickelmeyer's "Down South" series of pictures and go and do likewise with the material at your door: material that is overlooked and ignored simply because so familiar and so plentiful. You who live on some noble river, study its moods, its varying aspects at different seasons. Portray its placid flow at one point, its rapid rush at another, and its ever-varying part in furnishing here, pleasure, and again, power, for the benefit of man. Make a series of pictures representing the various phases of any form of industry; mining, sheep-raising, hop-growing, lumber-cutting, in fact, anything at hand and you will find that commonplace as they may seem to you, their portrayal will be appreciated by the outside world, particularly if you can combine good photography and artistic treatment with that touch of human interest which well-chosen and appropriate figures give when not too self-evidently posed for the occasion.

Learn a lesson from some of our best painters and confine your efforts to one class of subjects. Let the success attained by your brother photographer in the professional ranks, who has wisely chosen a specialty for his efforts, influence you in doing the same. Who can equal the certainty and good quality of Byron's flash-light portrayal of stage scenes? Where can we find yachting views to compare with the unlimited number of such pictures turned out by Stebbins, Latimer, and others? Other instances might be cited but these will suffice.

In conclusion, I would like to meet an objection that has been raised, namely: The confining of one's efforts to one class of subjects must limit, if not lead, to an early exhausting of his field, as well as prove conducive to a loss of interest sooner than would a wider range of subjects. The case is entirely different. As we have said: subjects and variations constantly multiply as we advance, and the success which comes so much sooner is much more stimulating than any possible realization of unexplored fields could possibly present.

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Congratulations

In a recent letter, Mr. Alfred Stieglitz informs us that a cablegram from St. Petersburg announces that the Loan Collection of the Photo-Secessionists sent to the International Photographic Exhibition at the special request of the Duc de Leuchterberg, has been awarded the highest honor—the gold medal—in the pictorial section. The collection sent over included some eighty frames, the work of about thirty Americans. Individual awards to be announced later. Be their ideas what they may regarding the tenability of the position taken by the society which Mr. Stieglitz so ably champions, we feel most sure that the entire body of photographic workers of this country will unite in congratulating him and in thanking him for the high honor which the Photo-Secessionists have won for themselves and American photographers. The endorsement given their work by this award is a thing of which we may all be proud.

The Influence of War on Photography

It is perhaps well, with rumors of war so persistently thrust before our eyes, to console ourselves with the fact that at each new opening of hostilities the stimulus given photography is distinctly recognizable. It is a well-known fact to the trade that sales of photographic supplies increased forty per cent during the recent trouble between our own country and Spain. While no doubt of a somewhat spasmodic nature, the ultimate result of such a stimulus must mean considerable addition to the large army of camera-workers as well as an increased after-demand for supplies.

Free Cameras at the Coming Exposition

While by no means an assured fact at this date, we firmly believe that the Division of Concessions and Admissions of the Louisiana Purchase Exposition will extend the privilege so earnestly prayed for by the entire photographic press of the country. That such an action on their part would establish a much-needed precedence that would cause their fame to live after the glories of other Expositions, if not their own, should warrant them in setting aside the few objections that may present themselves.

$20,000 in Cash

During the year just passed, no less than twenty thousand dollars was distributed in cash prizes amongst the amateur and professional photographers of this country, in the shape of prizes for pictures entered in the various competitions. The year 1904 promises to be equally as liberally supplied with a like incentive to good work. How much of it will you, individually, secure?

New Models

From the early catalogues and reports from the manufacturers, it is an assured fact that there will be fewer styles with an improvement in the quality which the decreasing of the number of models will permit. That this action of the manufacturers will be to the advantage of the buyer there can be no doubt. Fewer styles will mean better grades and if the slightly higher prices which the increased cost of material seems to threaten, should be necessary, we can feel that the improvement in our implements which the new plan gives, will justify the less tempting prices which may be found necessary.

Which will Survive

With glass plates, kodoid plates, roll film, cut film, and film packs all claiming attention, it is a bold prophet that would dare say which will be the most popular a few years hence. It is hardly likely that any of them will be driven entirely from the field, yet there is every likelihood that the comparative popularity of these various forms of emulsion carriers may be somewhat altered, even within the coming year.

An Open Letter

Editor Camera Craft: *Dear Sir*—I find the impression prevails amongst some of the readers of Camera Craft that the article you recently published on "Improvement of Negatives" is from my pen. This however is not the case, the writer of the article in question appearing to hold quite different views from my own with regard to "faking" a photograph.

Whilst I consider the printing in of suitable clouds, the use of two or more negatives (where the desired effect could not be secured on one), local reduction, etc., to be perfectly legitimate, yet, I do not think that a picture, which is largely the result of wholesale pencil work on tracing paper attached to the negative, can be called a photograph.

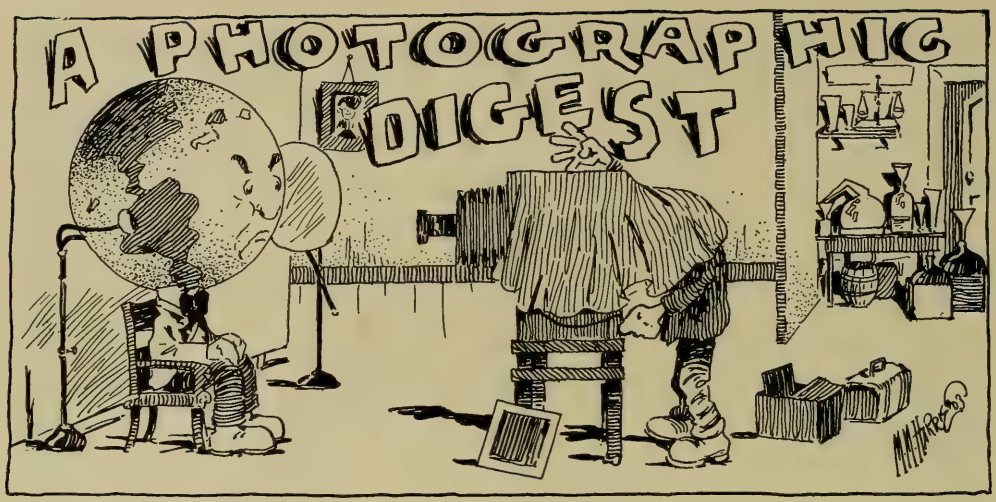
If the line be not drawn somewhere, a man, expert with his pencil, might dispense with a camera altogether.

A pure, straightforward, and genuine specimen of any art or craft is of infinitely greater value to connoisseurs than the cleverest imitation of it, and being a lover—and in a modest way, collector—of true art in any shape or form, I hold that a real photograph which renders all the thought and beauty the worker has tried and learned how to express, to be of far greater value than a so-called photograph in which the main effect gained is not due to photographic skill at all.

Holding such different views as I do from the writer of the article, I take the opportunity of disclaiming any credit whatever for an interesting account of how to improve results, provided one does not desire a photograph.

Yours very truly, H. G. Ponting.

AN ESKIMO MOTHER
by B. B. DOBBS
Photo Copyrighted



Worel's Direct Color Photography

In my article during the past summer, I gave an account of the Worel method and have since referred to improvements thereon. The *Photographische Mittheilungen* has recently published a series of articles which are well summarized by the following abstract from the *English Amateur Photographer:*

PREPARING THE SENSITIVE COLOR MIXTURE FOR THE WOREL METHOD

"The following discursive notes, gathered from the paper mentioned in the preceding paragraph, must be considered as supplementary to the working instructions given on page 389 of *The Amateur Photographer* for May 15th, 1902. The exact proportioning of the coloring matters so as to produce the required black mixture, must be by the trial method already described in our article a year and a half ago. The author now gives the following as a basis, or starting point:—Alcohol of 95 per cent, 300 c.c.; primrose, 45 centigrams; Victoria blue, 12 to 13 centigrams; crystallized curcumine, 50 centigrams; auramine, 10 centigrams. After the dissolving of the colors add 30 drops of a concentrated cyanine solution, and after agitation allow the solution to stand at rest for some hours. Next, to each 100 c.c. of the color solution there is added 15 grams of what is described as "Harzleimlösung," after which the mixture is once more agitated and allowed to stand. Probably the "Harzleimlösung" recommended is some commercial preparation well known in Germany, and conjecturing this, we give the original expression instead of such a literal translation as "resin-glue solution." If it be important to make prints with a minimum of exposure, the mixture should be diluted with alcohol, but prints made with the diluted solution will be less vigorous than if made with normal solution."

Before using the color solution, pure anethol must be added in the proportion of one drop of anethol to each c.c. The addition must be made gradually with agitation, and at a temperature of about 20 degrees c. More anethol increases the sensitiveness, but is not to be recommended, as destroying the purity of the color effect. It is of great importance to be able to obtain constant and reliable colors, therefore the author states the source of each. The primrose is the "primrose a l'alcohol" of Durand and Huguenin of Basel, and the curcumine that sold in crystals by Merck of Darmstadt. Both the colors were obtained from retailers or agents, but the Victoria blue is made by the Berlin Analine Co., and the auramine by Filippi of Vienna.

X-Ray Screens

The use of a fluorescent screen in X-ray photography is too well known to need description, but it is not generally known that the very expensive platinocyanide of varium screen can for most work be replaced by one of calcium tungstate at a fraction of the cost of the former. Mr. J. I. Pigg, in a recent number of the *British Journal of Photography,* gives the following directions for making such a screen:

"For preparing a 12 by 10 screen, two ounces of calcium tungstate will be amply sufficient to give a good coating of crystals. Various substances can be used as a support for the tungstate: glass, vulcanite, cardboard, parchment, etc., are all available for the purpose. Glass gives an even coating; but, being liable to breakage, this material is not recommended. When glass is used the coating is covered with a sheet of thick paper to protect it from injury, as the object to be examined has to be placed on the coated side of the screen, and observed through the glass owing to glass offering considerable resistance to the X-rays. Glass screens, in addition to being fragile, are heavy and awkward for traveling when the apparatus has to be taken to a distance.

"Cardboard is an easily-procured and convenient support for the tungstate; it should be fairly thin, with close texture and smooth surface to ensure even coating. A suitable medium for holding the calcium tungstate is required; gelatine, shellac, or meglip varnish make useful media; the first named gives the cardboard a tendency to curl inwards, and in consequence a spirit varnish is preferable.

"Shellac dissolved in methylated spirits is a very convenient support for the calcium tungstate powder. A rather thick solution of shellac is necessary. The powdered tungstate is placed in a mortar, and a small quantity of the shellac varnish added. As previously mentioned, the tungstate is insoluble in spirits, and in consequence the powder and varnish must be thoroughly incorporated, or an uneven coating will result. The mixture is well ground and stirred with a pestle in order to break up any small lumps that may have formed.

"The mixture should be of the consistency of treacle if glass is to be coated, but rather thinner for cardboard. If the emulsion is too thick methylated spirits must be added. Before coating the glass or cardboard, the powder and shellac is given a final stirring, as tungsten, being a heavy metal, the powder rapidly sinks to the bottom of the mortar. The material to be coated is laid flat on a table and the mixture poured in a pool in the center. It is then worked carefully and quickly round to the edges, care being taken to keep the solution moving till all the material is coated; the surplus is then poured back into the mortar, and the cardboard or glass kept moving to prevent the varnish drying unevenly, till the film is set. It must be remembered that a fairly thick coating is required, as a considerable deposit of the tungstate powder is necessary to give a strong fluorescence. When dry the screen should be tacked to a light wooden frame to protect the coated surface from careless handling.

"If glass has been used an opaque sheet of paper is pasted over the varnished surface, as the fluorescent image is viewed through the glass. These screens, in addition to their assistance in visual observations in X-ray operations, are valuable as intensifying screens for reducing exposures when the photographic plate is used.

"When used for this purpose the plate or film is placed beneath the screen in contact with the tungstate film. It should be remembered, however, that a negative which has been taken with an intensifying screen does not give such a sharply-defined image as a photograph taken with the dry-plate alone, but in many cases a short exposure is more important than a clearly-defined image."

Bromide Prints in Green

In the *Bull. Soc. Franc. Phot.*, Professor Namais gives a method for obtaining good green tones on bromide paper. The prints are first bleached in a 5 per cent solution of ferricyanide of potassium, and then toned in the following bath: Dissolve by the aid of heat 10 grams of vandium chloride in 2½ litres of hot water, add 25 grams of hydrochloric acid, and then 12 grams of ferric chloride and 25 grams of ammonium chloride.

Micro-Organisms and Imperfect Dry Plates

That spots on negatives are not infrequently due to bacterial growth has long been known. Usually this is the result of prolonged soaking and slow drying after development. It would seem, however, that the growth may sometimes occur before the plate leaves the manufactory. The subject has recently been investigated by Mr. P. L. Mummary, who reports his results in the *Photographic News* of November 25th. Referring to the imperfections produced, he says:

"There are two different ways in which the organisms seem to be able to cause

spots, and which variety of spot results will depend upon the nature of the organism causing it. Many of the organisms are capable of liquefying gelatine, and when these grow on the surface of the film they liquefy the film at this spot and cause a pit or depression in the surface. The result of this pit in the film is that the latter is thinned at this spot, and the light being refracted from the sides of the pit does not reach the underlying sensitized film, and so a spot is produced. Again, some of the organisms that cause these spots are able to reduce silver, and doubtless this is of no little importance in the formation of spots.

"The other or non-liquefying organisms cause spots by the formation of a colony or growth on the surface of the film. This colony or growth obstructs the light over an area corresponding to its size.

"If the spots on a developed plate be carefully examined with a powerful glass by refracted light, these two sorts of spots can be distinguished. The one shows as a slight pit in the surface of the film, and the other often as a slightly raised spot. Though, if the plate has been properly washed after development, all traces of the microbial colony are washed away, and nothing is left except the spot on the film caused by its having obstructed the light. The pit caused by the liquefying organisms remains, however carefully the plate is washed, as the liquefied gelatine is washed away, leaving the pit in the surface of the film. This is made more obvious if the film is damped before examining it for the spots.

"There seem to be several different kinds of organisms which are capable of causing these spots under suitable conditions. Some six or seven different organisms were isolated, all of which were found to be causing spots. Of these, two were moulds, one was a yellow sarcina, one was a micro-coccus which was markedly fluorescent in culture, two were capable of reducing silver, and two out of the six liquefied gelatine. It is probable that there are many more organisms of different kinds which at times cause these spots. All organisms are capable of great modifications in their conditions of growth, both as regards their rate of growth, the temperature of the air, and the medium on which they grow. And it seems probable that the organisms present in the air of a factory become so modified in course of time that they can grow best under the conditions there present. As soon as this state of affairs occurs an epidemic of spots on the plates starts and, not infrequently, continues for a long time, until something is done which so alters the conditions that they can no longer cause damage to the plates."

The Verant

Users of short focus lenses will soon be in possession of an instrument that will enable them to view their photographs without any of the apparent distortion of perspective that usually mars the character of such pictures. The Verant, invented by Dr. von Rohr of the Zeiss firm, enables a view to be examined under the true angle of view, without dwarfing of the distance and in almost stereoscopic relief.

Sepia Bromide Prints

The ordinary method of toning by means of a hypo and alum bath is in many ways troublesome, and for a long time efforts have been made to supersede it by a direct sulphurization of the silver image. Some of these I have previously described. The subject has recently been actively discussed in the English journals, and it would seem as though we are now in possession of a simple and quite reliable method of toning. First let me state that there is a general agreement that the brown tones produced by sulphurization are absolutely permanent; in fact there is good reason to believe that the image of brown sulphide of silver so formed is more stable than the ordinary black image of metallic silver. Two methods are advocated; first, that described by Mr. Blake Smith, is conducted as follows: A solution is made of—

Sodine	45 grains
Potassium sodide	110 grains
Water	10 ounces

The print is placed in this solution until bleached to a yellowish white on a deep blue ground; it is then transferred to a 5 per cent solution of sodium sulphite, from this it is directly transferred to a bath of sodium sulphide until the toning is complete, after which it is washed for two hours. The sodium sulphide bath is made as follows: Dissolve 1½ ounces of crystallized sodium

sulphide in 10 ounces of water and boil it in a flask for five minutes, and then filter out the precipitated iron (which is always present), then make up the solution to 12½ ounces and label it stock. The bath is made by taking one ounce of this solution to twenty ounces of water.

A modification of this method is described by Mr. Winthrope Somerville in the *English Amateur Photographer* for November 26th. It is as follows: The print is bleached in a solution of—

Copper sulphate	200 grains
Potassium bromide	200 grains
Water	10 ounces

The time required is about three minutes. Rinse the print until green tint disappears, and rock it in a 2 per cent solution nitric acid for five minutes; wash for five minutes, then transfer to a solution of sodium sulphide until toning is complete and wash for half an hour. The sulphide solution is made as follows: A ten-per-cent stock solution is boiled for five minutes, filtered from precipitated iron, and for use, one ounce of this is added to five ounces of water.

In both these processes the toning leaves the scale of gradation absolutely unchanged—the shadows are not clogged, and neither reduction or intensification occurs. It is much quicker than the alum hypo method, and the tone more certain.

The original papers should be read by those who are interested in the subject, for the writers show how other tones and colors may be obtained.

The Persulphate of Ammonium Reducer

All who have used the above know what a valuable agent it is, and they also know that so far as uniformity of action is concerned it is far behind the reducer of Farmer. Mr. Watmough Webster has recently investigated this defect, and writes thereon in the *British Journal of Photography* of November 20th. He concludes that the whole trouble lies in the varying acidity of the solution. A neutral solution has very little action, a solution containing 75 per cent of nitric acid was quite uncontrollable, rapidly destroying the image. Solution of persulphate rapidly becomes acid by decomposition, therefore the longer a solution has been made up the more active it is. The writer sums up the matter as follows:

"The practical outcome of these experiments would be the following recommendations:

"Keep a stock solution of, say, ten per cent (to be let down to one per cent when required for use), and note on the bottle the date of making. The worker will know what to expect. If this is considered wanting in uniformity the following would take its place (but few photographers like to bring out scales and weights for a simple operation): Make a fresh one-per-cent solution, and add nitric acid in the proportion of one-tenth part of the persulphate present. It is better to keep a stock-diluted nitric acid, say ten per cent, to carry out this recommendation with ease. The data I have given will enable any one to use this invaluable reducer with ease and certainty.

"I conclude with the reminder that the moment the negative is reduced sufficiently it should be placed in a ten or twenty per cent solution of sulphite of soda, and allowed to remain for, say, ten minutes before washing thoroughly."

Incandescent Electric Light for Copying

The *British Journal of Photography* in a recent article earnestly commends the incandescent burner as a source of light in copying and enlarging, commercial and otherwise. After referring to the general occurrence of this light in houses, it says:

"First, as to the advantage of this, or, indeed, any uniform artificial light for the purpose—the actual cost for the focusing and exposing is infinitesimal, and so need not be considered. The gain is great, for, once a definite plan for erecting the copying arrangement is hit upon the copying may be done in all weathers and at all times with certainty and despatch. Those who still do their own copying—in the wet plate days this was far more common than it now is—are familiar with the difficulties brought about by the weather and changing light, so much so that they are usually prepared to take a trial and a final plate to get the exact exposure needed. With an incandescent electric light all that is done away with. Once the correct time is ascertained for a particular class of subject, on a particular scale, the next occasion that arises will call for just the same exposure, no more and no less, so long as the same burner is used and is not allowed to be worked to the point

where the light is dimmed by the well-known black deposit on the interior of the globe; indeed, it would be well to keep the same globe for this particular use alone. One thing though must be exactly arranged, that is to say, that the light must always be placed at the same distance from the picture to be copied, as otherwise all the special certainty which is such an advantage will be lost sight of. Again, when the scale of enlargement or reduction is altered, either the requisite increase or decrease of exposure must be calculated—and this is simple enough—or what would amount to the same thing, the distance of the light from the subject must be varied as the scale varies. In the latter case it will be remembered the power of the light varies as the square of the distance. In the former, the rule—concisely given in a paper read a few years ago at the R. P. S. by Mr. W. E. Debenham—is 'to find the relative exposure, add one to the number of times the length of the original is contained in the length of the image, and square the sum.' This refers mainly to cases where the copy is to be larger than the original. Where a reduction is to be made beyond, say a quarter, the difference to be made becomes too trivial to need reckoning or allowing for.

"Next, as to the practical working. We find that the use of a single globe is quite sufficient for the purpose, and does not involve an unduly long exposure. Possibly the copying a picture to the same size will be the most frequent kind of copying called for, and, taking this scale as a standard, we may say that our own often repeated experiments have given three minutes as the time needed with the ordinary plate used for portraiture in a studio. Any variation in the plate employed would naturally require just the same allowance in regard to exposure as would be needed for the more usual work of a studio. So satisfactory have been the results of this mode of illumination that we have copied a print on P. O. P., and obtained a negative giving prints that it would be difficult to detect from the original when compared with the original. It is usually considered that, at any rate, with daylight the light should fall from each side of the print so as to avoid reproducing the texture of the paper."

WAITING FOR THE PROCESSION BY HUGO GOLDSMITH

Those Ready Prepared Developers

Take them, all in all, and they are about the best value the amateur can buy, but—they are very liable to make trouble if not used intelligently. Just to cite a case that came under my notice recently, I will risk being a little long-winded. I have an amateur friend who uses his camera simply as a recorder. He has no desire to delve into the mysteries of optics and chemistry and the art side of photography; why, bless you, he can occupy his time to more advantage. Well, he came to me the other day with a new form of trouble. He had given six seconds on an out-door portrait, taken in the shade of a small vine-covered trellis, with the light all around the subject, and yet the plate was under-timed. It was a Banner X plate, such as I had advised him to use in place of the extra rapid ones he had been having trouble with. These Banner X plates must be very slow. I inquired as to the action of the plate in the developer and learned that it behaved much as usual, but after developing about so far it failed to take on any added density other than a general graying of the whole image. He had used one of the best ready-prepared developers on the market; a really fine article, and one that had given him some very fine negatives in the past. These developers, as a rule, are compounded to suit the average snap-shot exposure, which generally is on the side of under-exposure. By so preparing them the manufacturer not only hits a larger proportion of the exposures, but at the same time his developer gains a reputation for bringing out detail better than another developer might do. Well, my friend's plates were over-timed. Not seriously so, had the right kind of developer been used, but over-timed for the ready-prepared article. Again, the same manipulation of the developer as is required for over-exposure, is demanded for all negatives made in winter. And again, the Cramer plate demands a still further increase of the developing agent, be it pyro, metol, or some other, as against plates containing more iodide of silver. I advised my friend to repeat the exposures the following Sunday, and develop the plates with a developer coming in two solutions or two compartments in the tube, and employing almost double the amount of the A solution, or the first powder in the tube. He did so and has just reported the finest negatives he ever made. The plates are the best he ever used, and the developer perfection. With a parting injunction to use the developer weaker when warm weather returned, and to use the ordinary proportions when dealing with snap exposures, I left him a most satisfied man.

Improving Negatives by Reproducing Them

For a number of years after I first began to dabble in photography, the idea that a negative could be bettered by reproducing it would have been scouted as an absurdity. I had read somewhere that a certain photographer prided himself on the fact that he could reproduce a negative, and make

the new negative so nearly as good as the original that it would require an expert to determine between two prints which one was made from the reproduced negative. Without giving the matter thought, this would seem to imply that the improvement of the negative during the operation of reproducing it was out of the question. Such is far from being the case. It will hold good in the case of a negative originally correctly exposed and developed, but what of the faulty negatives? These can certainly be reproduced, if the work be done intelligently, with the result that the new negative so made will be much better than the original. Over-exposed and thin negatives show the best improvement, but negatives that are harsh printers, owing to having been under-exposed and improperly developed, may be greatly improved upon. The first requisite is a supply of transparency or photo-mechanical plates, as the makers call these slow plates that give the best contrasts. From the thin and over-exposed negative make a transparency by contact, giving a short exposure and working to secure a contrasty effect, without sacrificing detail. This is best done by using a developer well restrained and extra strong in the reducing agent, be it pyro, metol or whatever is used. From this positive it will be easy to secure in the same way a new negative containing much better gradation and any desired amount of printing density. In the case of the contrasty and under-timed negative a little different plan is to be followed. The same slow plate is used, but this time a full exposure must be given, developing with a restrained developer as before, but one in which the pyro has been reduced and the alkali increased. The result will have the appearance of being somewhat fogged, despite the use of the restrainer, but all detail will be secured that is at all indicated in the original, and the density so objectionable will be lacking. Using the slow plate as before, a short exposure and strong pyro developer will result in a loss of the fogged appearance and a retention of all detail with the added advantage of full printing density.

Stain or Color

I would like to put in a mild protest against the use of the word "stain" in describing the yellow color of a pyro-developed negative. Common as the practice is, it is so common that I have been compelled to bow down to it in my own writings, lacking space or time to call attention to the error at the time. The only way to get a pyro "stained" negative is to place an otherwise clear negative in an old pyro solution and allow it to soak until the desired amount of color is secured. This plan is often recommended in the case of negatives lacking in contrast; and while it will assist in a measure to produce the desired printing quality that one failed to secure during development, it is obtained in much the same way as one would secure it by printing the same negative under a sheet of yellow glass or tissue paper. The result will be simply a slower printing negative which, on printing-out papers would give prints of a better tone because the salts contained in the paper, which are most inclined to give a purple or black image, are more actively acted upon when printing is conducted slowly. On a pure bromide emulsion, such as many of our plates and a few of our developing papers are coated with, no appreciable gain will be observable from this after staining of the film. The yellow coloration of a pyro-developed negative is an entirely different matter. This color is in direct proportion to the amount of reduced silver in any particular part of the negative. It is more in the nature of a coloration of the silver particles themselves than, as in the former case, a discoloration of the gelatine film throughout. In a pyro-developed negative, one in which the sulphite has been kept more or less below the point of producing an actually black image, if such is possible with pyro, there is very little of this yellow color in those portions of the negative representing the shadows in the print. Even where the yellowness seems quite pronounced, it will be found almost impossible to detect any color in those parts carrying no image, or in other words, no deposit of reduced silver. Such a negative will possess good printing qualities where one of like density of a less non-actinic deposit would give but flat prints. A negative in which the deposit is of a yellow color due to the use of pyro developer, and one in which the film containing the image is stained yellow, are two entirely different things as one can easily demonstrate by making a trial print from both.

Clean Up Your Camera

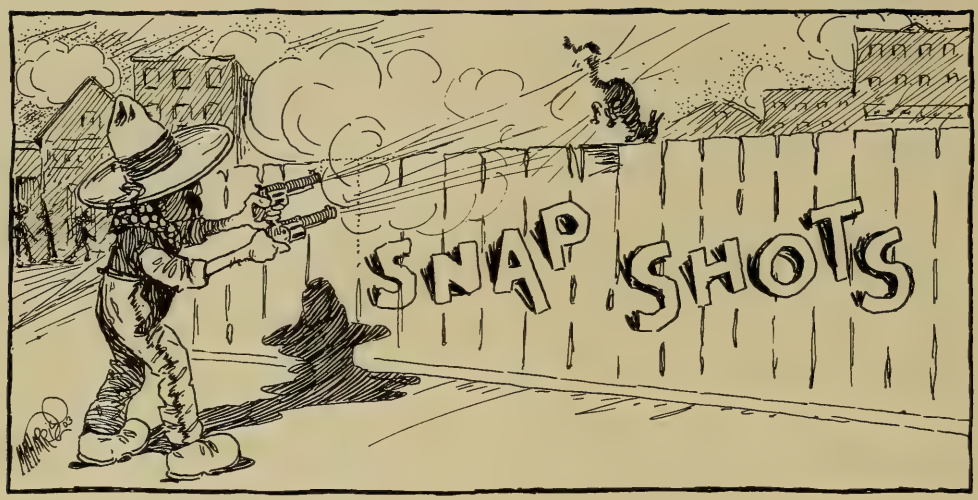
This is the time of year to get your camera in shape. Take out the front of it, if it is a box pattern, and clean out the dust. You will be surprised at the amount you will find. Take a soft rag and spill a little glycerine here and there over it. Hang it up in a warm place for a day or two to allow the glycerine to spread and permeate the cloth evenly. Use this to wipe out the inside of your camera. It will catch and retain every particle of dust with which it comes in contact. If yours is a bellows camera, extend the front to its full capacity in order that all creases may be reached. The holders are another favorite lodgement for our enemy, dust. There is a little hinged door running the entire length of the slit through which the slide is pushed. Remove the slide, insert a toothpick or bit of stiff card to push back this trap-door, and then blow through from the inside with a large rubber bulb or a pair of bellows. You will be astonished at the dust you will kick up. Another source of annoyance are nuts and screws that have been allowed to become slightly rusty. Put a drop of oil on all such working parts and turn backward and forward a few times to remove the rust. Wipe almost dry and there will be less danger of some part sticking at a critical moment. See that the shutter is in good working order. Do not use oil on the working parts, but the plunger may be well cleaned and given a slight dust of pencil lead, scraped very fine.

A "Practical" Lesson

Next summer you will want to photograph a path or roadway that will necessitate a time exposure. You will want to include the figure of your companion, and further, you will want to have him (or her) so posed as to be apparently in the act of walking toward you. Perhaps you have met the same difficulty before. Perhaps you tried it. The result no more represented a person walking than it did a person trying to look foolish. This failure has prevented your trying the thing again. That is all wrong. There are several positions of the feet that suggest more or less vividly a person walking. What is more, the pose is easily taken and as easily explained in pantomime. Take your camera and an obliging friend out into the back yard some day this winter and snap a few positions that you think will suit. The results will well repay the trouble and outlay for plates. A valuable lesson will be gained and even the failures will furnish much instructive amusement.

Acetonesulphite and Over-Exposure

I have recently seen some prints from negatives that were developed as prescribed on the formula sheet of the Bayer products, and they were a revelation. The claims of the makers that exposures forty-thousand times normal can be successfully dealt with are perhaps true. I would not like to say that they were not, in the light of the facts which these prints demonstrate. The plates were made as follows: An amateur of my acquaintance was to photograph a procession as it passed a given point; this point being a slight raise in the street where a railroad track crossed it. He focused upon the spot just before the arrival of the procession, closed the shutter as he supposed, and withdrew the slide in order that his entire attention might be given the finder. When the body of men were in the right place he pressed the bulb and, surprised at not hearing the familiar click, looked to see what the trouble was, only to find that the shutter had been set open all the time. The slide was rapidly inserted and so terminated the exposure. Just as an experiment the plate was developed as advised, giving a good printing negative of the scene, but with only a faint trace of ghostly blur to show for the some four-score men that passed while the shutter was open. An exposure of at least ten seconds was given when it had been the intention to give one-twenty-fifth of a second.



Printing Without Light

Dr. Wilhelm Oswald, professor of chemistry in the University of Leipsic, has succeeded in producing the necessary change, equivalent to that obtained by light, on sensitized paper by the use of silver on the negative which has previously been treated with a solution of peroxide of hydrogen. To quote from the report:

"The presence of the silver causes the elements of the solution to react against each other. In a very short time in those places where there is silver in the negative, the solution will disappear; in the other, spots remain. The invisible picture is then transferred to gelatine paper and finally developed by iron sulphate in solution. Gallic acid is then applied and the result is a genuine ink picture. Dr. Oswald declares that in this method the sensitized paper will keep indefinitely and the silver can be used over any number of times. He says the process is far cheaper and quicker than any now in use, besides requiring no light. By it, any design or drawing can be quickly copied."

Photography in the Home

A New York paper reports that it is no longer the proper thing for the society woman to go to the photographer. She has decreed that the manipulator of the shutter and the slide should come to her. The success of one or two enterprising photographers who were early in presenting the desirability of the new order of things should encourage artists in other cities to avail themselves of the possibilities offered as the custom will no doubt spread. Should it result in pictures showing our fine ladies in other than the pretentious frocks and display of jewels now affected when visiting the photographer, the change will be most welcome.

Color Photography Again

Mr. John H. Powrie, through the generosity of a friend, Miss Margaret Warner, has devoted his entire time for the last two years in perfecting what will be known as the Powrie-Warner Process. He has taken up the work where it was abandoned a few years ago by the International Color Photography Company, and believes that success is now his. He has invented a photomechanical process for producing the plates ruled in colors, and new machinery capable of turning out 200 dozen each day will be installed as soon as constructed. Mr. Powrie also expects to make a sensitive paper after the same method, which will permit of prints in all the colors of nature being produced as easily as are the ordinary kind at present.

Moving Pictures as Railroad Advertising

Exhibitions of moving pictures will now be employed to present the beauties of the scenery along the lines of our great railroad systems. The Southern Pacific has early appreciated the applicability of the magnificent scenery through which it passes, to this form of advertising, and its possibilities will be exploited.

Mr. Selig, of Chicago, with a complete

moving-picture outfit, undertakes the work. The picture machine will be placed on a flat car. The car will be run ahead of an engine, and the choicest glimpses of scenery between San Antonio and El Paso will be pictured. This will include views of the famous canyon country, the Rio Grande, etc. The road runs for many miles along the Mexican border.

Photographed by Lightning

The lay press has been reprinting a report concerning the effects of a lightning shock which was felt by several participants in a shooting contest at Pont, in the Canton Vaud. Each one of the party had the reflection of the pine trees behind him stamped upon his body. A New York paper recalls the case of a boy in the Bronx who was recently caught robbing a bird's nest by a flash of lightning which photographed the limb containing the nest, upon his body. Another makes the picture represent a fern which was in the path of the current. Again, not to be outdone, a Chicago paper cites "the case of a lady upon whose leg was imprinted the impression of a flower." The flower was on the other side of a brick wall. Another paper, whose editor perhaps lacks the imaginative mind so essential in journalism, simply fell back on the report made in 1766, by Franklin, of a case in which a man had the likeness of a tree against which he was leaning photographed upon his breast. The careful avoidance of other than a branching form of picture by these painstaking chroniclers suggests that the imprints are perhaps the form taken by the current on entering the body, rather than anything really in the nature of a photograph.

An Electric Light for Printing

Carbons made with a center core of carbide of iron are reported as a recent French improvement on the ordinary carbons employed in arc lamps. The new carbons give off a light of such high actinic quality that prints can be made three times faster than heretofore, using the ordinary carbons.

A Large Photograph

What is claimed to be the largest photograph ever made was recently completed in Chicago. It is eight by twenty-five feet, and pictures Zion City, showing plainly every house, tree and the like, within a radius of two miles. A tower, 161 feet high, was specially constructed to permit of the required elevation being obtained. The picture was sent to New York for use at the Madison Square Gardens.

Photography in Railroading

The Baltimore & Ohio, having recently been convinced of the great saving in correspondence caused by its heretofore limited use of the camera in the case of accidents, will shortly equip each department with an experienced photographer. The engineering and legal departments are expected to be benefited most by this innovation.

Photograms

While France and Germany both produce Annuals giving reproductions of the photographic pictures of the year, it is to our old London friend, *Photograms*, that we most naturally turn for information concerning the general progress of our art. As we pass over its pages it is with a feeling of satisfaction that we note the evident signs of progress in every country represented. Most interesting is it to observe the distinctly national note that, running through these collections—English, German, French, American and Japanese photographs—have pictured characteristics quite apart from their subject-matter. The American school is well represented and is accompanied by an interesting article by Mr. Osborne I. Jellott. The very excellent article of last year by Mr. Snowden Ward on Composition is supplemented and extended by another article on the same subject that should be invaluable to all serious workers. Taken all in all, there is not a better investment in photographic journalism than the price of *Photograms*. We wish, however, that the price were doubled, with a corresponding improvement in the quality of the reproductions.

With the Process Workers

Danger in the New Arc Light

Now that the old style arc lamps used for photo-engraving are going to be displaced by a new kind that produces the ultra-violet rays, it behooves the process-worker to look out for his eyes. The new lamp is of the type known as the "enclosed arc," or "vacuum arc," and the light given off is apparently much weaker than the old kind. But its ultra-violet rays are the kind to which the photographic plate is most sensitive, and it consequently reduces exposure and saves energy. At the same time the engraver's eyes are more sensitive to its violet rays than to the old yellow kind. And herein lies the danger. He doesn't notice it at first, perhaps not until the damage is done. But the remedy is simple. Yellow glasses, such as are used to prevent snow-blindness, are all that are necessary to protect the photographer's eyes from injury, due to the ultra-violet rays. It is the ultra-violet rays in sunlight that burn the skin of the "summer girl" or the processman, but after continuing in the sunlight for some days, Nature furnishes a coat of tan, which is, after all, but a yellow filter to prevent the ultra-violet rays from injuring the skin. Let us take the hint from Nature and use tan-colored glasses to protect the eyes.

Working Light for the Dark-Room

Too many photo-engravers are careless about this most important condition in the dark-room. Usually a piece of manila paper is all that is used to shut out the actinic rays. In a way this answers the purpose, but the result is really a dim, yellowish-gray light that strains the operator's eyes, and interferes with his work more than he thinks. What is wanted is a clear, brilliant light that will enable the finest details to be easily seen without fogging the plate. Try the following and you will wonder how you ever got along with the older method: Glue a piece of white paper to a glass not smaller than 14x20. Do not fold the paper over the edges of the glass, as the shrinking might cause cracking. When dry, give this a coating of furniture varnish, to which has been added enough orange chrome oil paint to make a bright yellow. With an ordinary gas jet this will illuminate every part of a 6x8 dark-room and yet not affect the plate.

Process Engraving

In this department questions addressed to Camera Craft, regarding photo-engraving, will be answered with care. Due research will be made wherever it is necessary for a correct answer. The experiences of printers and engravers are requested, and any suggestions will be gladly received. An effort will be made to supply the best information obtainable regarding the working and development of the three-color process. If you have any unusual experience with your work or have trouble with your chemicals, write to Camera Craft.

A New Collodion Emulsion

Among advanced process-workers it is quite generally agreed that the collodion emulsion plate is "coming." Leaders in the science all over the world are working at it, so it is wise for all photo-engravers to keep posted on the subject and not be caught napping when it does come. It is admitted that the new plate has many advantages, but they are "not enough" at present. Dr. E. Albert, of Munich, is the latest experimenter to attract attention. He has produced a new collodion emulsion which he calls "Eos" Emulsion, of which great advantages are claimed. The man who will invent a collodion dry plate that is more sensitive than the present wet plate will have a most valuable improvement, for the reason that the sensitive plates can be prepared in the morning, or when work is slack, or during dark weather; then when the weather is bright, or when work is brisk, he has not the delay of sensitizing. Besides, in some cases it may not be necessary to develop until late, when the bright light has passed. It might be said here that a collodion emulsion is a collodion containing silver, so that a silver bath is not needed; the mere flowing of the glass plate with the collodion emulsion and the draining of the plate is all that is necessary to sensitize it. It is said of Doctor Albert's collodion emul-

sion that with a sensitizing dye which he furnishes it becomes even more rapid than wet plates for half-tone work. Further, the plates are isochromatic; that is, they will reproduce paintings or colored drawings and retain the color values. This promises a great advantage in the making of half-tones from the blue-black toned photographs that are the trial of the photographer's life now. After plates are coated with Albert's emulsion they are drained and placed in the plate-holder for immediate exposure, keeping for about half an hour in the moist condition. This is not improvement enough. What we want is a plate that can be allowed to dry and still be as sensitive at least as the present wet plate. The suggestion may be sufficient to start experimenters at work, so that the century may not close until we can use a dry plate in half-tone making that will permit of all the after-manipulations of the present wet plate.

To Protect Process-Workers' Hands

Some photo-engravers do not care how badly stained by chemicals their hands become, but some do. For the latter, the following ointment is recommended. It is very little trouble, and its benefits are great:

Best castile soap in fine shavings	1 ounce
Water	1 ounce
Wax	1 ounce
Ammonia	45 minims
Lanolin	1 ounce

The soap is dissolved in the water heated for that purpose, the wax mixed in with much stirring, and, when all is in solution, the ammonia added. When clear, the lanolin is put in, and then, if the mixture is very thick, water added until the whole has about the consistency of honey. Keep in a covered stoneware jar. The hands should be first washed with ordinary soap, and then, while the lather is still on them, a bit of the mixture, about the size of a hazel nut, rubbed in until all is absorbed, and the hands are dry. At the close of the work, the film of wax is washed off in warm water and a little lanolin rubbed into the hands.

Retouching Photographs for Half Tone

For many years there has been more or less discussion as to the best material to use for retouching photographs for photo-engraving, so that the proper values will be retained between the artist's work and the picture. To hit it exactly with all photographs every time is practically impossible, because no man can judge the true actinic quality of a photograph. The surest method is to use a white that will photograph white every time. For this purpose there no longer seems to be any doubt that Albanine is the white. Avoid chinese white, zinc white and all lead preparations.

Blue Print on Ross Paper

The following formula is not a new one, but as many photo-engravers find it useful, it is given for the benefit of those who have never tried it. No bleaching is required, as the blue print does not "take" on the process negative:

Make a bath of—

Chrome alum	½ ounce
Water	1 quart

Pour into a tray large enough to accommodate your paper. Lay in the sheet perfectly flat, allow it to remain about three minutes, remove and hang up by the corners to dry. This makes the paper semi-waterproof, and it may be washed long enough for ordinary photo-prints.

To sensitize, coat the paper with the following solution:

Citrate of iron and ammonia	½ ounce
Water	4 ounces

using cotton to apply; then hang up in the dark-room to dry. Print under the negative until the darkest portion of the design appears, which is enough for an outline to follow in drawing.

Develop with:

Red prussiate of potash	10 grains
Water	10 ounces

Put in a tray and float about one-half minute until you see the design develop; wash well and dry.

Simple Enamel Solution

If you have never tried the following enamel solution it will be profitable to you to give a little time to it. Some of the best workers in the country are using it. They claim that when properly understood it is as good as any. It is surely the most reliable, because containing so few ingredients which reduce slight errors of mixing and the varying condition of eggs to a minimum:

Process glue	2 ounces
White of egg	2 ounces
Ammonium bichromate	60 grains
Water	2 ounces

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY
114 Geary Street, San Francisco

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Wanted—Every photographer and amateur to have one of our Fifth Annual Illustrated Catalogues of Backgrounds. Mailed free upon application. Hub Scenic Co., 1 Brandon St., Boston, Mass. Painters of good low-priced backgrounds.

Gallery for Sale—A good paying gallery in Petaluma, California. Population 5,000. Write for particulars. R. P. Dammand.

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Wanted—First-class photographic printer, who thoroughly understands handling Platino, Platinum, and Collodio-Carbon. One who, also, understands Genuine Carbon preferred, but not absolutely necessary. Good salary to the right party. Only first-class man need apply. Address D. B. Chase, Salt Lake City, Utah.

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THE FISHMONGER
by EDWARD NEWTON SEWELL

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

VOL. VIII SAN FRANCISCO, CALIFORNIA, MARCH, 1904 NO. 4

THE STORY of RAMONA from a Photographic Standpoint

By George Wharton James

FIRST PAPER

Who is there in America, with any pretension of being fairly well informed, that has not read Mrs. Helen Hunt Jackson's "Ramona"? For many years before writing this story, "H. H." had been delighting a large and growingly interested body of readers, not only in the United States, but wherever the English language was spoken. Her "Verses," "Bits of Travel," "Bits of Travel at Home," and "Bits of Talk" had shown her to be a woman of keen discernment,—one who felt the inner soul of the inanimate, as well as of the animate, world, and one highly capable, therefore, of being deeply moved with the distresses, the woes, the wrongs of others, and especially of those who were ignorant, innocent, and injured. Such she found the Indians of the United States to be.

Ramona has awakened the sympathies and aroused the affection of more American people, and for a longer time, perhaps, than any other heroine of American fiction. The fictitious story of her life is still one of the most popular-selling novels of the day.

What is the secret of its power?

It is undoubtedly the fact that, though it is ostensibly fiction, in reality it is sternest fact. That this is so, those who have studied the novel are well aware.

THE SHEEP-SHEARING PLACE AT GUAJOME

To the amateur photographer in California, this story appeals most forcibly. It offers so much food for his chosen art that he cannot afford to ignore it. It calls forth all that he is capable of accomplishing. First of all, there are the native settings of the story, the locations described. These comprise several of the most picturesque places in California: Camulos, the Santa Clara Valley, Santa Barbara, Monterey, San Jacinto, Cahuilla, Old San Diego, San Gabriel, Temecula, Pachanga, and a score of other places, all of which give one opportunities for exquisite picture-making.

Then, too, the details of the life of the early days described in the story are photographically instructive. If one is alert he may find Indian bands of sheep-shearers, as described in the opening of the book; life going on in the old Mexican or Spanish ranch-house corridors; washing under the willows; service in the private chapels, and similar subjects which serve to illustrate the minor details of the story.

Then, too, who can fail to see the rich pictures that abound in the old Missions, if one can get the priests in their "long gowns" to pose? And there is many an ideal Mexican and Indian face from which a wide-awake amateur might make a Felipe, a Señora Moreno, a Ramona, an Alessandro, a Juan Can.

And in the making of these pictures, what an education the artist would obtain! To study the southern part of the State, with this story in mind, to visit all the available places, and to photograph all the suggestive scenes, would be a revelation to many who deem themselves already familiar with the State.

Let us look at a few pictures that can thus be made.

There has been much discussion as to the *real* home of Ramona. I have before me now while I write, a beautifully illustrated booklet entitled "The Real Home of Ramona." It is devoted to a description of the Rancho Guajome, four and a half miles from Oceanside, on the San Diego branch of the Santa Fe railway.

Now as Ramona is a fictitious character, she had no real home, except a birth-home in the imagination of her creator, Mrs. Jackson. If one chooses to say "I believe the Rancho Guajome to be the real home of the fictitious Ramona, who never had any real existence," there surely can be no objection to that. That Mrs. Jackson was familiar with Guajome is well known. She had visited it and had been hospitably entertained by its owners, Lieutenant and Mrs. Couts.

CHAPEL AT GUAJOME—SHOWING WALLS OF CEMENTED RESERVOIR

On the other hand, Mrs. Jackson herself, who surely ought to have known what she meant to do, placed the fictitious home of her fictitious character at Camulos, on the coast line of the Southern Pacific railway. Her word is final. No amount of argument can possibly overturn what she herself has written, but if argument be needed, let it be said that with but one exception no error can be found in the descriptions and locations at Camulos, while there are several discrepancies when one endeavors to locate the scenes at Guajome.

It is interesting and instructive, however, to compare them and thus see how closely similar the old dons created and sustained their home-establishments.

One reason for the assumption that Guajome was the place originally in "H. H's" mind, is found in the several references to the San Luis Rey Mission, which is only three miles and a half away. It is argued that if Camulos were meant, a nearer Mission, viz: San Buenaventura, would have been chosen.

No doubt! But it seems far more reasonable to me that "H. H." deliberately and purposefully made discrepancies of this character apparent in her book, so that it would be impossible for any one to attempt to locate exactly the home of her fictitious character. Naturally she would wish to throw people off the scent; especially if she had woven true incidents into her story (as she did), some of which the participants therein wished to have forgotten.

Here are some of the references to San Luis Rey Mission:

"On the veranda (the Señora's veranda) were carved oaken chairs and a carved bench, which had been brought to the Señora for safe keeping, by the faithful old sacristan of San Luis Rey." There were images of saints also, and this is how they came into the Señora's keeping:

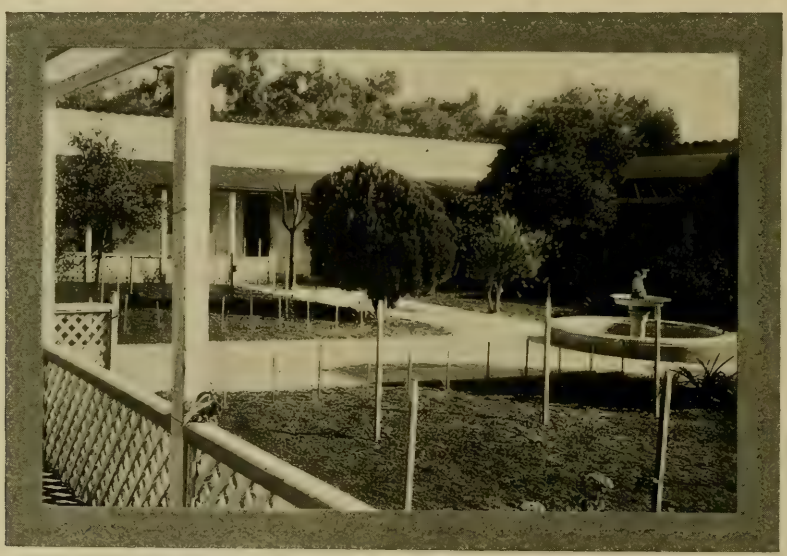
"Aghast at the sacrilegious acts of the soldiers, who were quartered in the very church itself, and amused themselves by making targets of the eyes and noses of the saints' statues, the sacristan, stealthily, day by day and night after night, bore out of the church all that he dared to remove, burying some articles in cottonwood copses, hiding others in his own poor little hovel, until he had wagon loads of sacred treasures. Then, still more stealthily, he carried them, a few at a time, concealed in the bottom of a cart, under a load of hay or of brush, to the house of the Señora, who felt herself deeply honored by his confidence, and received every-

thing as a sacred trust, to be given back into the hands of the Church again, whenever the Missions should be restored, of which at that time all Catholics had good hope. And so it came about that no bedroom in the Señora's house was without a picture or a statue of a saint or of the Madonna; and some had two."

Again, after Ramona and Alessandro had been married in San Diego by Father Gaspara and were riding away, Alessandro was mourning because of the poor home he should have to give his bride, when Ramona exclaimed: "Any house that you will build, I can make comfortable. It is nothing but trouble to have a house as large as the Señora's. Margarita used to be tired to death sweeping all those rooms in which nobody lived, except the blessed old San Luis Rey saints."

These references are taken to indicate surely that Ramona's home must have been very near to the San Luis Rey Mission.

Guajome is remarkably interesting, whether it were Ramona's fictitious home or not. Yet visitors should remember it is a Spanish gentleman's private home. When I was last there, a "female person" and her male companion came, and



THE RANCH HOUSE IS BUILT AROUND THE PATIO OR INNER COURT

without a "Please," or "Will you kindly," stepped to the door of my friend, who was himself a guest at Guajome, and boldly asked, "Will you show us around?"

Had I had the answering, I should have asked the "lady" to read Mr. Couts's notice, tacked on the door jamb close by. It is interesting reading:

NOTICE.

Ladies and gentlemen calling here, in my absence, will kindly refrain from assuming liberties in and about these premises that would be objectionable to you if exercised by strangers in your homes.

This is private property and must be respected. Sightseers are only tolerated, NEVER WANTED!!

CAVE J. COUTS, Owner.

There are those who may deem this notice inhospitable. Such are unable to comprehend the rudenesses and vulgarities of some tourists. Nay, more, the vandalism of the ordinary American is beyond the comprehension of any honest, dignified person. Some come and peer into the kitchen, and, when permitted to enter, even lift off the lids from the cooking-pots to see what is therein, offering as a lame excuse for their rudeness, with a sickly smile, "I thought it might be fryholes"—some call it *fry joles*—"cooking."

Nothing is safe from such people. Mr. Couts assured me that he has had to dismantle the roof of his old stable in order to secure the tiles to replace those on the housetop broken by camera fiends who have actually walked on them in order to secure pictures of the *patio*.

The name Guajome is Indian and signifies "the home of the frog," or "the frog-pond." There are several springs about the place, and one of these supplies the water for a good-sized pond, where many frogs "do congregate." The overflow from this pond makes a marshy spot where tules and other rank vegetation grow abundantly, and where willows and water-loving trees thrive.

This frog-pond and the willows are taken by those who see Ramona's home in Guajome, as the sheep-washing place and the brook. Thus says one writer: "It was at the washing place, the brook under the trees, that Ramona suffered the first horrible injustice that came to her. She often went to this washing place, we are told, to wash out a handkerchief or a bit of filmy lace, for Ramona was a lace-maker, having been educated at Los Angeles by the sisters of the Sacred Heart Convent. It was a pleasant spot, this washing place, cool and shady even at noon, and the running water was always full of music. Ramona often knelt there of a morning, and when Alessandro saw her, it went hard with him to stay away."

At last, one evening, they chanced to meet under the trees, by the large sloping stones that lay with one edge in the water, and Alessandro, led on by Ramona's gentleness and humility, told her of his great love. And then the terrible, implacable Señora found them, ere they had realized the sweetness of their first kiss, and drove Alessandro away with bitter words, and made poor Ramona a prisoner in her room. One can see by the engraving, what an appropriate place it was for the sweet story of love to be told—the story that was to be the turning point of two noble lives.

Then here we have the sheep-shearing place. The beautiful valley, where biting frosts are never known, gave pasturage to great flocks of sheep. The sleepy Mexican herdsman, shut in by the blue mountains and the peaceful ocean, dreamed away the sunny hours and did not realize, until the priest came to tell him that the world was full of strife, that the hand of man was raised against man, and that instead of one owner, the happy valley must have many. But the Señora had still many sheep, and the shearing time was made a sort of festival. The author says: "The shed where the shearing was done was a long, narrow structure, all roof and no walls, the supports being slender rough posts, the roof of planks laid side by side."

The Señora, ever looking after the moral welfare of all about her, more indefatigably, indeed, than she looked after her own, always managed to have the priest's visits occur at the shearing time; so that, really, there was a sort of intermittent service of religion, dovetailing nicely with an intermittent shearing of sheep, and this went on until the last sheep was relieved of its burdensome wool,

when the flocks and the father both departed for new pastures. Even the windmill which we see standing apart from the trees—it has lost some of its picturesque features through necessary renovation—is spoken of in the story. "There was a brisk wind, and the gay colored wings of the windmill blew furiously round and round, pumping out into the tank below a stream of water so swift and strong, that, as the men crowded around, wetting and sharpening their knives, they got well spattered, and had much merriment pushing and elbowing each other into the spray." The Indians were the best shearers on all the coast; each man, as their leader Alessandro said, being "able to shear his hundred a day, and that without a scratch upon their sides."

Though sheep-shearing days are not quite what they were in the early days in Southern California, they are still great days. On several of the large ranches, as many as five and even six thousand sheep may sometimes be found. To see these sheared is a great sight. On some ranches the sheep-shearers (the best ones) are still Indians, so that if one is fortunate enough to be at hand, or to receive an invitation, he may see the sheep-shearing just as it is described in "Ramona." Often in wandering about on the great ranches have I come across these great herds of sheep, gently grazing with their faces toward the rising or setting sun, while the merry voice of the shepherd singing his quaint and interesting folk-songs has risen above the noise of the moving feet of the sheep and the tinkle of the bells on the old "bell-wethers." When these herds were found in the shelter of trees, as they often were, the scene was one to be enjoyed by the hour. Sheep look all alike to some people, yet there is a great individuality in them, which some—indeed, all *real* shepherds, and even their dogs—realize. It is a peep into a new world to see sheep through an intelligent shepherd's eyes.

While the descriptions of the book do not correspond with the reality at Guajome, there are some things in common.

The ranch-house is built around the patio or inner court, just as described in "Ramona." It is located so that the front faces the southwest. The whole structure, therefore, is oblique to the points of the compass. The rising sun first shines into the corner where the open fireplace of the Indians is, and into the corner of the patio near to the dining-room, so that on coming out to breakfast the inmates and their guests would be welcomed with the beams of the morning sun. The walls are nearly three feet thick and, therefore, solid and substantial. Every room has, or could have, two outlooks, one into the patio, the other upon the outside.

The roofs are covered with the old tiles, made so familiar to us in photographs of some of the Missions. They were made by old Indians who had helped make those now used on the San Luis Rey Mission. The tiles are about two feet long and are not, as many imagine, of uniform breadth at each end. The lower end is much broader than the upper, so that if two of them were placed together to form a circle, they would appear like a sugar cone or an enlarged axle for a carriage or wagon.

The kitchen opens upon an outer veranda where much of the work was done, not on the inner veranda as described in "Ramona." There is also a great bee-hive-shaped oven, a monster affair, nearly six feet high and about six feet long, similar to the one shown, except that its mouth opens into the baker's kitchen, where was room enough to prepare all the good things the oven was capable

of containing. But no longer does the merry fire rage within its cavernous depths. Its mouth is open all the time, but it is the mouth of a dead monster, instead of that of a live, jolly old cannibal that used to open and shut and devour things, only to give them back shortly in a fit condition for men and women to enjoy.

In the servants' dining-room is an open fireplace that must have been a joy to all concerned. It has an opening about five feet across and three feet high; the hearth is raised nearly two feet above the room floor and the whole is built in the old-fashioned massive style and then whitewashed. It undoubtedly afforded

OVEN SIMILAR TO THE ONE AT GUAJOME

comfort of the most delightful character to those who were privileged to enjoy it.

Another great fireplace is that at the northeast corner of the patio, outside. This relic of the past stands close to the great doors which enter into the wagon court. The open space is about sixteen feet long and ten feet broad, with a door entering one of the rooms directly opposite the fireplace, and large double doors leading into the patio on the right. Here the Indian laborers and employees on the great ranch were wont to assemble at night before retiring to their own quarters. Here the vaqueros, when they had been caught out in the storm and arrived at the house wet through, would come and dry themselves.

To shut out their noisy revelry and fun from those inside, the large doors were closed, and thus there were two worlds going on side by side, each separate, each apart.

It was well, too, that the doors could be closed, for in those early days it was not always sure exactly what Indians could be relied upon and what not. Some were treacherous and vengeful, for they fiercely resented the theft of their homes and loved not the haughty dons who lorded it over them in domineering style.

That Indians once lived close to, or perhaps on the very site of, Guajome is clearly apparent. Up under where one of the modern water tanks is now built was once a grinding place of the Indians. In a huge out-thrust boulder of granite a deep mortar has been scooped, and there the seeds, grain and meat were taken to be pounded. Who knows but that once an Indian village was located right on the very spot where the ranch-house now stands? There was water in abundance, and such a location was just what an Indian would naturally choose. Then, too, a few hundred yards from the house, is a large date palm evidently of great age; it was old before Lieutenant Couts built the house in 1852. Who planted that? Where did its seed come from?

At the Rancho Guajome there is also the chapel spoken of; the chapel in the garden, although in its preservation it has been considerably modernized. This is where many of the San Luis Rey saints were put, and where old Father Zalvidea, one of the last of the Franciscans, used to come to say mass for the family and their Mexican retainers. In speaking to Felipe of the father's

SHEEP-WASHING PLACE

coming, the Señora says: "He leaves Santa Barbara on the first, and the tenth is the very earliest he can be here." Taking out the day he had to spend in Ventura, the day at Ortega's rancho, and that at Lopez's, it would still leave him seven days of travel from Santa Barbara to Señora Moreno's house, at the very least; and, it was longer even than she had reckoned, before he reached it. Ramona had the chapel all ready for his coming. She delighted in keeping the images adorned

with wreaths of flowers and the ferns Alessandro brought her: "tall ones, like ostrich plumes, six and eight feet high; the feathery maidenhair, and the gold fern, and the silver, twice as large as she had ever found them. The chapel was beautiful, like a conservatory, after she had arranged them in vases and around the high candlesticks." Then Alessandro taught Ramona to make wreaths of last year's seeds of the artichoke,—"great soft round disks of fine, threadlike silk, with a kind of saint's halo around them of sharp points, glossy as satin and of a lovely creamy color."

Everything at Guajome, at the time I write (September, 1903), is very dilapidated. When the estate of the Señora Couts was settled (she died six years ago, viz., in 1897), her son, Cave Johnston Couts, bought the ranch from the other heirs with the laudable desire of keeping it together and of some day restoring it to a modernized resemblance to the glorious past. It has been and is a great undertaking, and it is hoped he will succeed, for it is a princely inheritance.

Mr. Couts laughs at the idea of locating Ramona's home at Guajome. He has no love for Mrs. Jackson, and deems her characterization of the Indian as entirely false.

In my next article I shall take the amateur photographer to Camulos and there see the home of Ramona exactly as described by "H. H."

New Rules for the Photographers

For Those Who Wish to Enter Photographs at the St. Louis Exposition

In July, of last year, the Department of Liberal Arts of the Louisiana Purchase Exposition, issued invitations to seven leading photographic societies to name one member each of a proposed committee of review and selection. The duties contemplated for this committee were to examine and grade the photographs offered for exhibition. The majority of the societies failed to respond, and it became necessary to change the program. The new plan gives the photographers of America, both amateur and professional, an excellent opportunity to display their work under the most favorable circumstances.

Following is the official bulletin for the guidance of photographers who wish to enter photographs in the Universal Exposition, which opens in St. Louis, April 30, 1904:

First. Applications for exhibit space should be made without delay on forms or blanks furnished by this office. Full information should be given as to number, character and size of pictures to be submitted, together with a sketch showing proposed arrangement on walls, folding screens, or in albums.

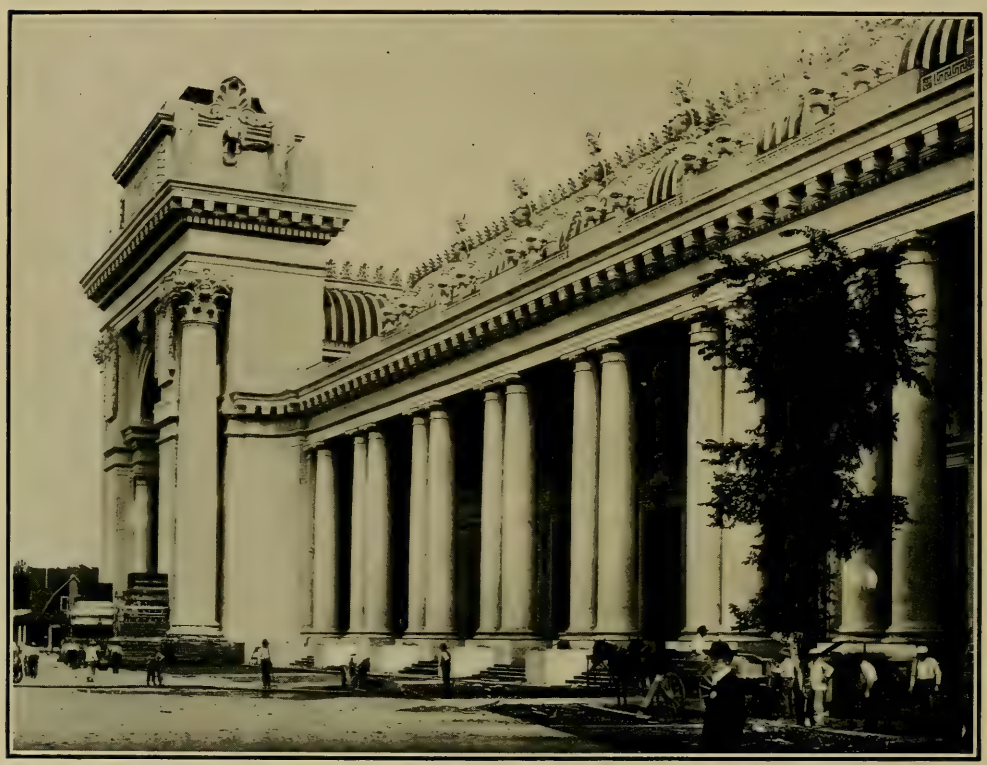
Second. All pictures offered must be mounted, matted and suitably framed or otherwise properly prepared, for ready installation in the space devoted to photographs, the owner assuming all risk and expense of shipments to and from the Exposition, as well as the installation and care of same while on exhibition.

Third. All photographs accepted as exhibits will be subject to review by an international jury of awards, composed of members from each of the several countries making photographic displays.

Fourth. All photographs should be shipped so as to reach St. Louis not later than April 1, 1904. Shipping labels will be sent to accepted exhibitors on application to this department.

The railways have granted free return of goods on payment of full rate to the Exposition, provided shipments are made in accordance with adopted regulations.

Fifth. Freight and express charges and all charges appertaining to the transportation of photographs, must be fully prepaid at the point of shipment, and



PARTIAL VIEW OF THE WEST END OF THE PALACE OF LIBERAL ARTS, ST. LOUIS EXPOSITION

the goods delivered at the Liberal Arts Palace clear of all charges of every description incident to transportation.

Sixth. Photographs offered as exhibits must be the individual work of the exhibitor named in the formal application for space.

Seventh. There is no charge for exhibit space and suitable screen walls will be constructed in the Liberal Arts Palace on which photographs may be hung.

Eighth. Special adornment of space or extra lighting will be at the expense of the respective exhibitors requiring same.

Ninth. General rules governing exhibits, their installation, the system of awards, shipping regulations, etc., will be furnished on application to this department.

JOHN A. OCKERSON,
Chief, Department of Liberal Arts.

Child Portraiture by Flashlight

By M. F. Cherry

My first interest in photography was aroused in a curious manner, in fact I was driven to it to carry out my desires of having a complete record of the lives and actions of my children, so that I might always have them with me to brighten up what is hard to look forward to, but what seems inevitable, a lonely old age.

When our first little one came to bless our home, we were so completely taken up with its bright sayings and cute actions that we seemed to take it for granted that our baby would be a permanent fixture, that it would always be "Baby," and would never grow up and could not possibly pass out of our lives.

The pleasant dream was one day dispelled when our dear little one succumbed to the terrible ravages of an infantile disease. Our grief was aggravated when we realized that we had nothing but our frail memories to remind us of our loved one. If we had had only a photograph, no matter how poor, what a comfort it would have been.

When another little darling came to fill the vacant gap, we resolved not to be caught in the same predicament as before, and the poor little chap was hardly able to hold his head up before he was taken to the photographer's to have a "sitting." This, his mother did regularly every month, and while the results were sometimes not bad, they were never quite satisfactory. And then the monotony of the poses, the stereotyped backgrounds, the "property" chairs and fur rugs, etc., how they grated on our nerves. We tried different photographers, but to no avail,—they all used the same methods. When the baby began to "sit up and look around," the real troubles began—it was like taking him to slaughter to have his picture taken. My wife would "fret and stew," the photographer would get mad, resittings would have to be made, etc., until poor baby's picture became the bane of my life.

UNDER-TIMED, FLAT NEGATIVE

One day, however, while away in the country, a friend made a snap shot of my boy while he was playing in the grass, and when he showed me a print finished by the local photographer, I cried "Eureka"; I had at last found a way out of my difficulties. The picture was a splendid likeness, so natural and so cute. To be sure it was finished on miserable paper and pasted on cheap cardboard, but it was baby all over. I had my friend order a number of duplicates and considered myself a very fortunate man.

PLEASING

I immediately formed plans for the future and when we returned to the city I made arrangements with a prominent professional to come out to my home in the suburbs and make a series of pictures of my hopeful in perfectly natural poses. I appointed a Sunday in September and then prayed all week for a pleasant day. When the day came around it was cloudy and by the time the photographer arrived at the house it was raining badly. I tried to coax the photographer to unpack his outfit and at least make a few trials on the porch, but he said it would be useless and departed, promising to come the next Sunday if the weather were favorable.

It certainly was, for I have never seen a more beautiful day, but sad to relate the baby had been stung by a bee while playing in the garden in the morning and when the photographer got there his face was twice its normal size, and a picture was impossible.

I gave the thing up as a bad job, paid the photographer and sent him home.

The next day on my way to the train I met a friend, whom I knew to be somewhat of a photographer and told him my troubles. He laughed heartily and then asked me why I didn't photograph my children myself. He always did his, and to show his success he produced from his card case, watch and locket, pictures of his wife and children that were so natural as utterly to astonish me. I immediately

grew enthusiastic about getting an outfit and accepted his kind offer to meet me at noon the next day to help me select one.

I need not go into details about the trials and tribulations of my first attempts, so let it suffice to say that after many efforts, I got so, with the help of my good friend, and members of our local Camera Club, that I made fairly good photographs of scenery, houses, cattle, etc., doing all the work myself from exposing to finishing, and if I do say it myself, doing it well, so well in fact, as to take a prize at the Camera Club and another from a weekly paper. But my efforts with the children are a different story. What hours of work I spent, what a stock of patience I exhausted in my efforts in this direction! The mechanical part of the work was fine, the exposures correct and the negatives beautiful, but the results were anything but picturesque and the likenesses more like caricatures. The great difficulty seemed to be to have all the conditions right at the same time. If the children were in a cute position it would always happen to be in the shade, which resulted in a case of under-exposure, flat negatives or good negatives and movement. The least suggestion on my part to direct attention toward the light resulted in harsh contrasts, scowling faces, shaded eyes, and in fact everything was undesirable. If by any chance I had the light conditions right, or nearly so, something would happen to divert the children's attention. In fact, I never seemed to be "Johnny on the spot," and had given up all hope of ever getting good pictures of my children when one night at the club a new member who overheard me bewailing my fate asked me why I had not

CUTE POSITION, BUT IN THE SHADE

tried flashlights. The mere mention of this kind of photography in connection with children's pictures seemed absurd to me, as it immediately called to my mind the most atrocious things in the way of photographs I have ever seen. Eyes entirely closed or else almost popping out of their sockets, corpse-like faces, harsh high lights and no detail in shadows. Everything infinitely worse,

PICTURES OF HIS CHILDREN

especially for children, than the worst daylight conditions that could be imagined and only to be resorted to when nothing else could be done.

The new member insisted, however, that he had seen some beautiful work done in this way, and that while he had never tried it himself, he intended doing so at the first opportunity. He seemed so confident of the possibilities in this direction that, catching at the last straw, I gladly made arrangements to have him come to my house the following evening to make some experiments.

On my way home the next night I stopped at a dealer's and bought some flash-powder that he put up himself and which he guaranteed to be O. K. I had always understood that flash-powder was dangerous stuff to handle and rather demurred against taking anything put up by him, not that he was not perfectly honest, but I felt that I would rather have something put up by a larger and more responsible firm. He told me that he could give me such a powder, but assured me that all flash-powders were made up from practically the same formulæ, with magnesium and chlorate of potash and that his was the same as any other, but as he made it

AN EASY AND GRACEFUL POSE

himself he could afford to sell it cheaper. This seemed perfectly plausible and after he had shown me the different powders, which were apparently exactly alike, I did not hesitate to take his.

When I got home I found my wife in a state of nervous collapse and begging me not to expose the lives of our children to such a dangerous thing as flashlight powder, showing me an account in the morning paper of a terrible accident that had befallen an amateur photographer while making a flashlight of his family. His hand had been blown off, his eyesight destroyed and his wife badly injured.

You can imagine the state of mind I was in, and was about to get rid of the dangerous powder when my friend arrived and explained to me just how the dreadful accident of the night before occurred.

It seems that there are several methods of making flashlight pictures, two different kinds of powder being used. The pure magnesium which has to be burned in a specially constructed lamp, and an explosive compound in which magnesium is the source of light but with which is mixed chlorate of potash or some

other explosive compound to enable it to go off quickly so that it can be used in cartridge form or in pistols for quick work, etc.

The terrible accident referred to was due to a confusion of these two methods: the photographer using the prepared explosive mixture employing it in an apparatus intended for the pure magnesium only.

This explanation satisfied me but did not entirely pacify my wife who insisted that my friend and I should make a preliminary trial before exposing the children. This we gladly agreed to, and after getting everything ready according to the instructions of the dealer who sold us the powder, we turned out the lights, lighted the fuse and waited for the flash; it came very soon and seemed very brilliant. I, who was posing, felt that I had closed my eyes. Although we had used only a small quantity of powder, the explosion was very loud and the concussion enough to upset the stand on which the powder had been placed. As we had apprehensions of worse things, however, we thought this was not very bad. There was a dense, white smoke in the room and a peculiar garlic-like odor that was very distressing to the throat, but this we soon cleared out by opening the windows. There also seemed to be a fine white powder over everything in the room, which, however, was easily brushed off, so we did not worry about it.

On developing our trial exposure, it came up, we thought, beautifully, but after fixing we found that part of the face and collar was very brilliantly lighted while the rest of the picture was almost entirely lost. We attributed this to the small quantity of powder used and decided to double it when we photographed the children.

We soon had the children in position, nothing artistic, but fairly good, and everything was all right until we turned down the lights, then one of them began crying and the other became uneasy. We tried to quiet them but were unsuccessful, so giving up all hope of getting anything good we lighted the fuse just to assure them how harmless the flash was. Well, that was the finish. The explosion was deafening, the children cried, my wife screamed, and, to tell the truth, I was also frightened. The glare of the light was something terrible and it was some minutes before we could see enough to turn on the gas. We had to go out of the room until the smoke cleared a little and when we came back we found that the explosion had upset the stand, and this time, broken the plate the powder was on. But this was not the worst; there was a black streak in the carpet where the fuse had dropped and continued burning, and the white dust was everywhere. In fact I thought I would never see or hear the end of it. It kept my wife house-cleaning for two weeks. But I had the picture, such as it was. Both the children's hands were over their eyes, my wife looked scared to death, while I myself, although standing as dignified as possible, looked more like a stiffened corpse than anything.

The ghastliness of the pictures was awful. When I showed the print to my friend the next day I intimated that my flashlight experience, although brief, was over. But he insisted that the difficulty was due to inexperience and that he was going to try and try until successful. I wished him luck and left him, entirely hopeless of ever obtaining my cherished children's pictures.

It was not long afterwards that my friend called one night with some excellent flashlight pictures he made, and also a little yellow tin box which he said contained the kind of powder he used.

He said he had been experimenting constantly ever since the night of our failure and had worked out successfully some pet theories of his own on the method of making flash pictures. He was determined to convince me of the virtues of flashlight photography, and although I was very skeptical, I was open to conviction. He won my respectful attention immediately by declaring that almost everything we had done the other night had been wrong.

MY EFFORTS WITH THE CHILDREN ARE A DIFFERENT STORY

The worst mistake we made was turning out the light. When I heard this it gave me new hope. He then went on to explain that the ordinary light used for illuminating purposes had very little actinic power, and unless directly within the range of the lens would have very little effect on the plate unless reflected from the very brightest surface. This, he explained, permitted the use of the ordinary illumination in the room which greatly softened the picture and entirely overcame the blinding effect of the flash in the eyes of the subject, so much so indeed, that unless the subject were looking toward the flash it was almost imperceptible. This seemed almost too good to be true, but his explanation was so plausible and so different from the directions we had followed with such bad results, that I readily believed it.

Most of his success he attributed to a flash-powder which he first saw used at a political dinner by the representative of a newspaper. My friend was surprised at the small quantity of powder the newspaper man used and still more so when he found that it made no noise at all and very little smoke, so little in fact that it was soon diffused about the place and was scarcely noticeable. It apparently had no odor and was not in the least distressing. Upon inquiry he found the powder was a new German preparation recently put on the market by the Bayer Co.

My friend lost no time in purchasing some of this new product which was put up in a very unique manner, the magnesium being kept entirely separate from the

igniting material, which by the way, is not chlorate of potash and has not the objectionable characteristics of that undesirable ingredient of flashlight compounds. After the powder is mixed it is entirely different from other powders and is almost black, whereas the others are a light grey.

The first trial with the new powder was not at all successful. My friend followed the directions closely, put a little heap of powder on the tray that is furnished with each package, thrust in a piece of fuse paper that is also given with the powder, lighted the fuse and awaited results.

The fuse burned up to the powder, sputtered a little and then went out. He tried it again and still it failed to go off. Finally he became provoked, and heated a poker and touched it to the powder. This had the desired effect, although he was surprised that the powder burned rather slowly and gave quite a little smoke, much more in fact than that which the newspaper man used. He came to the conclusion that something was wrong, and wrote to the manufacturers, who replied that some of the first powder on the market had a tendency to absorb moisture if not kept in a perfectly dry place and that he evidently had a package of that lot. The powder had lately been greatly improved, however, and this tendency entirely overcome, they said, and sent him a fresh package to try, that worked beautifully. It was some of this package that he had with him on this occasion, and in a few minutes we had everything ready for an exposure. The preparations being made in the full light, we had no difficulty in getting the children to pose, and before they realized it the flash had gone off. There was so little noise that neither of them started, and their eyes were so accustomed to the bright light of the room that they scarcely noticed the flash. We had so little smoke that we made several exposures before opening the windows, and the dust the powder made was all collected in a newspaper that my friend fortunately placed under the plate with the powder on it. When we developed the pictures we were utterly amazed at the softness and beauty of the negatives. Very fortunately we had caught our boy in a couple of cute positions and by arranging the camera and flash behind my back, while I kept the little one's attention, we were able to obtain easy and graceful poses, which I had never been able to get by any other method.

NATURAL

Since my lesson that night, I have made flashlight after flashlight with ever-increasing pleasure and with results that would please the most critical. My

experience has convinced me that flashlight photography is the only method by which natural and pleasing children's pictures can be made. Try it and see if I am not right.

In closing, I would caution my readers that it is absolutely necessary to have the children to be photographed, perfectly at ease, and in order to do this, excitement must be avoided as much as possible. This can be accomplished only by using a compound which yields a soft, brilliant light and goes off without noise or dust and very little smoke. Unlike the dangerous chlorate of potash mixtures, it is perfectly safe from explosion by blow or friction, and its use will make impossible any such casualties as have appeared lately in the daily papers.

Report of Executive Board Meeting, Photographers' Association of America

GEORGE G. HOLLOWAY, Secretary

St. Louis, Missouri, January 11, 9 A. M.

Upon the call of President C. R. Reeves, the executive board of the Photographers' Association of America met in executive session at the above hotel, all the members being present: C. R. Reeves, president; Charles W. Hearn, first vice-president; C. J. Van Deventer, second vice-president; F. R. Barrows, treasurer; George G. Holloway, secretary.

The Secretary reported as follows:

Received on 1902 account	$ 128.31
Received from floor space	1,715.00
Received from desk space	300.00
Received from advertising and entertainment fund	1,411.30
Received from sales account	6.00
Total receipts	$3,560.61

The Treasurer reported:

Cash on hand, January 1, 1903	$ 5,175.89
Received from membership and dues	2,659.00
Received from Secretary	3,560.61
Refund Traffic Association	17.00
Total receipts January 1, 1903	$11,412.50
Disbursements, as per vouchers from Nos. 330 to 402, inclusive	5,341.76
Balance on hand, January 11th	$ 6,070.74

The President appointed C. W. Hearn and C. J. Van Deventer to audit the books of the Secretary and the Treasurer, which were found correct and approved.

On motion, it was decided that the next Photographers' Association of America Convention be held in St. Louis, dating from October 3d to October 8th, inclusive.

The executive board was fortunate in securing the Forest Park University Hotel, in which to hold the meetings of the association. This hotel is within a stone's throw of one of the entrances to the World's Fair grounds, and is capable of taking care of our members. This will be the grandest convention ever held in the history of the association, and sociability will be one of its main features. (More anon.)

CHILD STUDY BY ALFRED L. KOCHER
Taken with a Brownie

On motion, it was decided that the President appoint an honorary vice-president from each state, to co-operate with the executive board in their respective states.

It is believed that this plan will greatly increase the attendance and stir up the state associations, whose co-operation is so necessary to the success of the convention.

On motion, it was decided that this convention be known as the World's Fair Convention, Photographers' Association of America.

On motion, it was decided that, in accordance with a resolution passed in 1903, certificates of life membership be prepared and presented to all past presidents of the Photographers' Association of America, during one of the business sessions of the coming convention.

The following committees were appointed by the President: Badges and buttons—F. R. Barrows and George G. Holloway. Transportation—George G. Holloway and C. R. Reeves. Hotels and accommodations—C. J. Van Deventer, C. R. Reeves and F. R. Barrows. Decoration and hall—Charles W. Hearn and C. J. Van Deventer. *Association Review*, the official journal—Charles W. Hearn and F. R. Barrows. Entertainment—Entire executive board; C. R. Reeves, chairman. Printing and advertising—George G. Holloway and C. R. Reeves. Committee on information—George G. Holloway, chairman.

With every assurance to the photographers of America that the coming convention will be one long to be remembered, and trusting that it will be our pleasure to meet you in St. Louis, in 1904, the executive board hereby seeks the hearty support of all progressive photographers in the land.

Night Photography

By H. D'Arcy Power, M. D.

PART II.

In the last issue I dealt with the subject of photographs made by the light of the moon. I now propose to deal briefly with the subject of pictures made by the ordinary illuminants of the house, viz: the oil-lamp, the gas-jet, and the Welsbach burner. Considering the ready control that we have in the direction and force of the lighting, it is a little surprising that this method of picture making has not received more general attention. Do we wish to make a still life group, such as our artist friends esthetically designate "jag studies"—decanter, wine-glass and accessories? We have a means of lighting that is ideal. A hand gas-lamp, or an oil-lamp may be moved to get the exact effect we desire—and the time of exposure is of no consequence. As a matter of fact, they are not so prolonged as might be expected. Glassware, white plates, and other actinic objects, placed within eighteen inches to two feet of a table lamp yield good pictures in two minutes

with a lens stopped to F/8. Where the actinism is low, such as in the case of oranges, apples, red grapes, etc., an exposure of ten minutes may be necessary. In arranging such groups an effort should be made to bring the least actinic objects closest to the light. The power of the illuminant diminishes in the inverse of the square of the distance, so that if in arranging your group you place your cigars, oranges or similar bodies within six inches of the illuminant, and the glasses, plate of crackers, etc., six inches further away, the latter will only receive one

fourth of the illumination of the former and the whole will reproduce in a correct manner. When an artificial light is thus used with knowledge and judgment it is capable of giving results unattainable with daylight.

Bearing in mind this statement of the rapid loss of light with distance it is obvious that where a single light only is used, the background, if somewhat distant, is likely to be lighted so poorly as not to impress the plate at all. I have seen several such pictures reproduced in magazines but they are rarely successful,

because unnatural. We can always see the walls of a room, even if illuminated with nothing stronger than a single candle, and our photographic studies of evening scenes should show at least some light in the background. If we attempt to obtain this detail by means of the light illuminating the subject, the latter will be hopelessly over-exposed before the distant background has impressed the plate. What ought to be done is to expose for the main objects, then extinguish the light, without, of course, removing the lamp, and continue the exposure for the background by a light placed outside of the field of the lens. This can well be the gas-lights overhead, or a lamp placed above and behind the camera. How long this exposure should continue is a matter to be determined by the strength of the light, the distance of the background, its color, and the aperture of the lens. The question can be easily determined by exposing a plate in the camera in four sections by withdrawing the dark slide a quarter at intervals of five minutes or any determined time. In the case of the little portrait studies accompanying this article, the background was lighted by three ordinary gas-jets in the chandelier above while the face received its lighting from the reading-lamp on the table. Both had the same exposure. It is, of course, necessary to take care that any secondary lights employed shall cast shadows in the same direction as the primary light. Lamp-light would be excellent for portraiture were it not for the length of exposure. If, however, the worker has a lens working at large aperture this is in no sense prohibitory. A Petzval portrait lens or an anastigmat working at F/4 will give a

full exposure in one minute, and with careful development half a minute would suffice. The accompanying prints were taken with a five-inch planar working F/4 in one minute. The figure at the piano was lighted solely by the three lights of the chandelier, at least ten feet distant; the rest received their chief illumination from the hand-lamp, but the lights above helped out usefully in giving light upon the hair and in detaching the figure from the background. The much greater actinism of the Welsbach burner would permit of a considerable reduction in the times given above.

In leaving this subject I would point another advantage that workers by lamp-light enjoy. They are less troubled with false values due to the over-sensibility of the plate to the blues and violets. This is well seen in the better rendering of skin, making retouching unnecessary. To obtain the full advantage of this the worker should use orthochromatic plates, which reduce the time of exposure. The question of halation naturally comes into all photographs wherein direct lights are included. I use films, and as will be seen from the accompanying pictures, it has troubled me very little. Where plates are employed they should be backed, and if halation be still in evidence, either the negative must be locally reduced, or the positive retouched. If the print be made on platinotype paper retouching can readily be effected with a wash of lamp-black.

The third division of night photography is that dealing with street scenes and illuminations. If my own experience in this direction be less than in the previous sections, the general knowledge is fortunately much greater. Ever since Mr. Stieglitz published his night pictures of the streets of New York, the field has been vigorously exploited by many workers, and the conditions for success amply described. The subject is divisible into two sections—namely, streets with,

and without illuminations. In street scenes the great desideratum is to obtain the natural amount of detail in roadway and buildings without excessive halation from the lights. If the problem be not satisfactorily solved the resulting photograph will have little pictorial merit. Now detail in the buildings may be obtained either by sufficient exposure at night, or by a very brief exposure at late twilight. The objection to the latter artifice is that the sky is thus always the highest light, which in night scenes (except with very bright moonlight), is not the case. Perhaps local reduction of the sky, might, if skilfully done, put this right. If this daylight exposure be resorted to, the time, according to Mr. Kelsey (whose article in CAMERA CRAFT, Feb. 1902, should be read by all intending workers), at F/8, and just before nightfall, should be about thirty seconds. But this introduction of a different type of lighting is at best, a makeshift, and only used in cases of necessity.

The choice of a moonlight night is the next best solution. The little picture of San Francisco from the hills near the Twin Peaks was so taken, there is ample, almost too much detail and the street lights, especially the glare of Market street is well shown. The exposure was twenty minutes.

But the typical street scene has its qualities from the nature and position of the street lights, and this quality should be carefully preserved. To succeed in this it is necessary to take a position where all foreground lights are excluded from the picture, especially if these be electric arc lights—the circle of halation which the latter will cause is ruinous to any print. Secondly, a street should be chosen in which moving lights, especially tram-cars are the exception; and if any such appear the lens must be capped until they pass. The passage of non-luminous moving bodies does not affect the plate, but large, moving lights appear as white streaks. The time of exposure is dependent on the number and nature of the lights and the amount of reflection.

The plain, yellow gas-lights cause little halation, but objects lighted by them require long exposure. An hour will not be too long for an ordinary street scene. Electric arc lights on the other hand require very short exposures, but themselves photograph very badly. But perhaps the main factor is the amount of reflection. A fall of rain turns the pavement into a vast mirror, diffusing the light on all sides and greatly reducing the exposure. It is just these wet night scenes that have given us the best pictures, and among them some of great beauty. Under such conditions, the exposure is short enough to include standing figures, and waiting teams, thus adding life, without which street scenes are always somewhat flat.* Snow-like rain greatly shortens the exposure and yields equally charming results.

In the case of photographing illuminations, the main point is to secure sharpness and definition of the illuminating points and this can only be effected by a short exposure; a prolongation sufficient to give a good indication of the buildings themselves will result in that general blurring of the lights that we so frequently see in such pictures. If, therefore, we are to show the illumination in relation to their supports and not merely outlined against general blackness, we must have recourse to a preliminary twilight exposure.

Such being the case it is obviously imperative that the camera remain perfectly fixed during the interval. This is usually impossible on the street itself, because illuminations mean crowds, and the latter have no respect for tripod legs. The worker will, therefore, choose some elevated spot, preferably a window and clamp his camera to the ledge, or some other fixed object. The general directions as to the plates, etc., given under moonlight and parlor-light photography are applicable here. In the matter of printing I have found blue-black carbon to give the finest results, and this is particularly so if transferred to celluloid. Where a beautiful result is marred by halation or false lights, the simplest way to save the picture is to make a carbon transparency, retouch it with a little melted carbon tissue of the same tint, and from this make another negative in the camera, or if not a

*The operator can pose as a figure if necessary, his journey to and from the chosen place to open and close the lens will have no effect on the plate.

carbon worker, make a full size bromide enlargement on soft A platino-bromide, and from this make a second negative by reduction.

Night photography offers a large promising field that can not, however, be covered by set formulæ and rigid rules, but to those who care to devote taste and brains to its exploitation a rich harvest is assured.

Photo Sketching

By W. G. Waldo

Almost every amateur photographer, especially among those interested in natural history photos, would like to make pen and ink sketches from some of his prints, but lacks the means of doing so with satisfaction. It is the purpose of this article to explain briefly a process for making these sketches, simply and conveniently, and, furthermore, requiring little or no artistic ability on the part of the manipulator of the pen.

The first thing to do is to obtain, of a dealer in photographic goods, a supply of salted and sized paper, and of the druggist, the following chemicals:

Nitrate of Ammonia, 1 oz.

Nitrate of Silver, 2 oz.

Bichloride of Mercury, 200 gr.

Provide a supply of cotton wool, or absorbent cotton, and you are ready to make your paper. Proceed as follows:

Into a large bottle pour 20 oz. of distilled water and add the nitrates of ammonia and silver. This and the subsequent operations should be performed in a dim light, as a bright light will ruin the paper.

Mark with a lead pencil the backs of all your sheets to be coated, as they cannot be told from the emulsion side, when dry, unless some such means of distinguishing be employed.

Pin a sheet to a smooth board and coat the paper with the solution just prepared, by means of a tuft of cotton, first using a vertical stroke and finishing evenly with a horizontal one.

Repeat for as many sheets as required and, when dry, the paper is ready for printing. This is done as usual with printing-out papers, in the sunlight, printing just deeply enough to make the detail in the photo appear clearly defined. It is now, without any toning, to be fixed in the hypo bath, about a one-to-ten solution, and washed thoroughly.

When dry, take an ordinary steel pen and Higgins' Waterproof Drawing Ink, and sketch in the prominent lines in the photo, making no attempt to show the detail accurately, but *suggesting,* rather than actually *showing,* it as it is, being careful not to fill in any part fully black. Practice on a few pictures will enable one to make a very satisfactory sketch, and to do it with surprising ease and rapidity.

When the ink is dry, immerse the print in a solution composed of 20 oz. of distilled water in which is dissolved the 200 gr. of bichloride of mercury and a small quantity of ordinary table salt,—say 1-8 oz.

This bath will bleach the print until only the black lines of the sketch remain. The print is then removed, thoroughly washed, and when dry will, if proper care has been exercised, result in an almost perfect sketch of the object photographed.

Several cautions should be mentioned in connection with this process. Take care not to get either of the solutions on the hands or clothing, as the spots so caused are practically indelible. Both nitrates, and particularly the mercury, are poisonous, and should be plainly labeled as such. Do not forget to mark the back of the sheets as the sides cannot be distinguished otherwise. Do not prepare much more paper than can be used at one time, for the paper does not keep indefinitely. It is best preserved by laying it in a large tin box, in which has been placed a perforated tin pill box containing calcium chloride. Fresh paper should be used whenever possible, however, as the best results are obtained with newly-coated stock.

If it be desired to tone the paper, it is readily done with any good gold-toning bath just neutralized with ordinary baking soda, when excellent prints will be obtained.

This method of photo sketching is particularly well adapted to the sketching of flowers, animals, birds, etc., for use in a natural history notebook, and sketches may thus be made which would be unobtainable in any other manner.

An Explanation

In the January number of CAMERA CRAFT, Dr. D'Arcy Power made a translation of a description of a new method of silver-printing, by Professor R. Namias. The article was considered of sufficient importance to merit a separate heading, but by an unfortunate error in printing, the name of the translator was substituted for that of the discoverer, to whom our apologies are due.

Beautiful Chillon by Lake Léman

By Wendell G. Corthell

Illustrated by the author

WE KNOW of no more romantic, more famous, or more unique castle, especially in its surroundings than that immortalized by Byron in his "Prisoner of Chillon."

It has been the privilege of the writer to spend many days, at various times, wandering in the vicinity of this favorite place of resort. Within half a mile, on the Lake, at Territet, is one of the finest hotels in the world, open all the year, and patronized by every nationality. At Montreux, a mile or so away, are many fine hotels, and on the mountains reached by cog railway are several more, and thousands come here, not only for the "grape cure," but to drink in the wonderful air and revel amid the scenes along charming Lake Geneva.

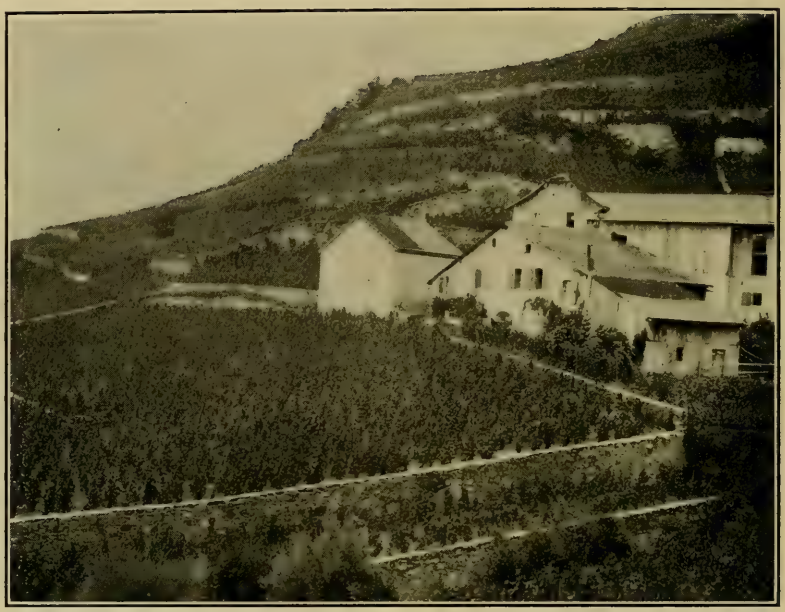
Last summer the writer took the pictures which illustrate this article. The Castle is now the property of the Canton and is kept in perfect order, just as in the old days of the Dukes of Savoy. It will well repay the camerist to make the trip here, and remain as long as possible. Two weeks was none too long for us this summer. He can make the trip here from Geneva by boat or train, or stop as he comes up into Switzerland from Italy, over the Simplon Pass.

The walks all about are like those of a Garden of Eden. One feels as if in another world. He wanders among the vineyards, over the perfect roads, bordered with mellow mossy walls, and in the beautiful woodland paths. He looks out over the ever-changing lake and clouds, across to the snow-capped Dent du Midi, and wishes life could always continue among such restful and entrancing scenes.

Chillon, in its present form, was built in the 13th century.

Its style of architecture is unique and is well seen in its singular location, on the rock jutting out into the deep waters of the lake.

The railroad skirting the northern shore of the lake by Lausanne, Vevey, and Montreux, passes within a hundred feet of the Castle before going on to Villeneuvre, and far up the Rhone Valley to Breig. There begins the longest tunnel in the world, now under construction, which will pierce the mountains under Napoleon's famous highway over the Simplon Pass.



Chillon has become especially romantic from the story of Bonnivard, Prior of St. Victor, who, by his warm defence of the Republic of Geneva, incurred the hostility of the Duke of Savoy, into whose hands he fell in 1530, and by whom he was imprisoned here for six years.

In the gloomy dungeons other early reformers and prisoners of state were confined. On one of the pillars in the famous prison vault are to be seen the names of Byron, Hunt, Schiller, and many other celebrities.

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Getting out a Photographic Publication

There are two ways of doing the thing. There is not a patent on either. One method, as near as can be judged from the evidence submitted in a few cases, is to bend every energy to the securing of all the possible advertising patronage, pocket a certain amount, and use the remainder and the subscription receipts in getting out the publication. The proprietors of CAMERA.CRAFT are trying a little different plan. From the beginning it has seemed to them that a more creditable and direct method would work as well, if not better. That the advertisers pay for the production of the publication, they do not dispute. While they, the advertisers, do this, they must be assured that they are receiving value by reaching a clientele that they could not reach in any other way. In other words, the readers, the magazine and the advertisers, form a chain, that, much like the one in the proverb, can be no stronger than its weakest point. A large circulation spells good advertising patronage; the latter means a better publication, and this, in turn, insures a still larger list of subscribers. It is this view of the matter that has induced the publishers of CAMERA CRAFT to close a contract with a gentleman who is equipped to carry out his part of the work,—as proved in the case of magazines in the general field which he has helped to build up,—a contract that necessitates the outlay of a sum each month equal to the present monthly receipts from advertising. If it be found that such effort on their part is appreciated in a substantial manner by those benefited thereby, the contract will be renewed at the expiration of six months, and the increase in circulation will be felt to be worth its cost.

Conditions Governing at the Louisiana Purchase Exposition

Elsewhere in this issue will be found the latest particulars concerning the conditions governing photographic exhibits at the coming Louisiana Purchase Exposition. There will be no charges made for wall space, and this, as well as other concessions granted, proves that the management desires to extend to the photographers of the world every encouragement and every consideration in its power. To Colonel Ockerson, of the Fine Arts Department, we are in no small measure indebted for the privileges which we will enjoy. Under the circumstances it is hardly fitting that we should allow any lack of harmony in our own ranks to mar its full enjoyment, or to discourage further favors from future exposition managements.

Why the Lack of Good Photographs?

At this moment, when all are interested in the war between Russia and Japan, it seems strange that our daily press should be so seemingly unable to supply us with more than faked up reproductions of pictures "drawn from telegraphic report of the action," copies illustrations of such weekly publications as *Collier's,* or *Harper's,* or, if from original photographs, bearing a more or less remote connection with the printed text. There are certainly photographers "on the spot." It is no less certain that at least a part of them would be willing to market their work. It is equally an undeniable fact that not a few of our metropolitan dailies would be more than willing to pay a good price for photographs that could be used. Why is it that we have not something in the photographic line that would be a fitting co-worker with the Associated Press? Photographers capable of undertaking such work are certainly as plentiful as are capable reporters.

A Congress of Photographic Salons

Robert Demachy, in closing an article in *Photograms of the Year,* after cataloguing a few of the vexations caused not only the exhibitors, but the exhibition committees, by overlapping of dates, misunderstandings of Custom House regulations, and a few other things,—suggests that it would be most desirable that the honorable secretaries of the various salon-giving organizations arrange something in the form of an international congress "to decide on the dates of opening of the different salons, which constantly overlap each other, arrange for collecting the best work in each country for foreign exportation, settle the sharing of expense, and many other important details." The idea is certainly a good one, and timely, indeed, in the face of the growing disinclination on the part of our best workers to pay the price of exhibiting in other than their own country, which the present method entails. CAMERA CRAFT will do all in its power to further the formation of such a congress, and will willingly give publicity to any suggestions leading to a culmination of Mr. Demachy's most commendable idea.

The Next Convention

The report of the executive board of the Photographers' Association of America, which met January 11th, at St. Louis, will be found on another page. The officers are sparing no pains to make this coming convention the best that can be arranged. Even the selection of a date, October 3d to 8th, is a step in the right direction, avoiding, as it does, the danger of sweltering weather. All in all, it is, no doubt, the best report ever issued by a Photographers' Association of America through its board.

An Amateur Meeting

Mr. L. T. Brodstone, secretary of the American Camera Club Exchange, advises us that members of that club, the Nebraska Camera Club (a state organization), the World-wide Photo-Exchange and possibly the International Photographic Exchange, will make the third week of August their date of meeting in St. Louis. These several clubs have an aggregate membership of over eight thousand and quite a body will meet there on that date.

A Photographic Digest

By H. D'Arcy Power, M. D.

Some New Tones for Lantern Slides and Bromide Prints

It seems not to be known that nickel, cobalt, and some other metals may be pressed into service for toning, and with the very gratifying results that some new tones can be obtained. Most of the tones so obtained are bright and clear, and above all pleasing. To tone with nickel one must proceed on the lines of Mr. Ferguson's copper-toning process, but with certain modifications. If any one will follow the directions I here give, a very fine golden-yellow color can be obtained, which, although of not much service on a white screen, yet serves as a starting point for something optically useful. Make up 10 per cent solutions of potassium citrate, nickel chloride, and ferricyanide of potassium. Take enough of the potassium citrate solution to cover the slide well, say, 1½ ounces, add to it 2 drams of ferricyanide of potassium solution, and then add, a little at a time, and stirring all the while, nickel chloride solution so long as the precipitate first formed is redissolved. At first the solution obtained is green, but finally it is yellow by reflected, and brownish red by transmitted light. Then pour it over your slide. If the action does not begin in a minute or so, add a little more of the ferricyanide, for it is essential that this shall be in excess. The solution must be freshly made for each slide.

Tone until the slide is bright yellow all through, wash its surface off in water, and then in very dilute hydrochloric acid. Finally, wash for a short time in water again to clear of acid. Do not put the slide in hypo, for that would completely dissolve away the image. This yellow image may be converted into a beautiful transparent green by placing it in a weak solution of ferric chloride. The green obtained is nearly an apple green, quite unlike that got by iron chromium toning or by any other process with which I am acquainted. If a copper solution be made up, according to Mr. Ferguson's formula, and the nickel-toned slide be placed in it, a good orange color can be got by stopping the toning at the right moment. An orange, although not so good, can also be obtained by following nickel with uranium.

To tone with cobalt one must follow on the lines of the nickel toning. Make up 10 per cent solutions of potassium citrate, ferricyanide of potassium, and cobalt nitrate. Mix the same quantities of the first two as for nickel, and slowly add the cobalt nitrate solution so long as the precipitate formed is dissolved by the potassium citrate. It is here also essential that the ferricyanide be in excess, and that the solution be used at once. If the slide be fairly vigorous, and be toned out, a very fine crimson, or peach-blood-red color, as I have heard it described, is produced. It should be, like the nickel-toned slide, well-washed in very dilute hydrochloric acid followed by a moderate washing in water. Do not place it in hypo unless you wish to reduce it. A weak solution of iron chloride will convert this cobalt-toned slide to a grand purple color. Subsequent toning in the nickel-toning solution will give a brown, but not a pleasing one. Immersion in a very weak solution of ammonium sulphide will convert the image into cobalt sulphide, and tone the slide to a very warm sepia.

A very pleasant brown can be obtained with vanadium, but on account of the price of the material it is not likely to be used much. The commercial vanadic acid is dissolved in hot dilute hydrochloric acid, filtered from the insoluble residue which is considerable, and in my case, consists chiefly of fine sand, and is then nearly neutralized by ammonia solution. The resulting solution is green. If a lantern slide be immersed in this solution the image is slowly bleached. After washing, it is placed in a very weak solution of ammonium sulphide, which gives the brown of vanadium sulphide. Combination slides can be made with some of these colors, and are very successful. Thus, from a negative of a woodland scene with a rustic bridge, roadway, and grass in the foreground, a reversed dense negative was made. A slide from the first negative was toned green with nickel and

BERKELEY FRESHMEN VS. OAKLAND HIGH SCHOOL

Taken with the Reflector

BY A C PILLSBURY

iron. A slide from the reversed negative, made with short exposure and containing only the shadows and not the high lights, was toned with cobalt. When the two were superposed, the shadows were deep enough and brown, while the high lights—grass and foliage—were a tender green. Many such combinations may obviously be made, and will suggest themselves to all readers. Thus a good effect is produced with a sea scene by having the water green and the foreground, rocks, or beach, brown. I have nickel and cobalt-toned slides in my possession which were made two years ago. They are as bright now as then.—John Bidgood, *British Journal Photography.*

To Determine Accurately the Focal Length of a Lens

The *Photo-Gazette* (October 25th, 1903) recommends the following method: First, mount the lens on a long-extension camera. Now take a strip of cardboard, and make two small perforations in it at a distance apart about equal to one fifth of the focal length of the lens. Next mark off the distance of the perforations on the ground glass, by penciling through them, after which set up the perforated card in a window, and get the perforations in focus on the pencil marks; or in other words, adjust the camera for equal scale copying. The base-board of the camera must now be marked, and a distant object brought into focus, when the difference in camera extension will be the focal length of the lens. The distant object should be a pole, tree, or chimney not less than a quarter of a mile away.

Double Printing on Bromide Paper

The printing in of clouds or other subjects on a bromide enlargement after the latter is developed and visible, has obvious advantages. Protected by a cap of yellow glass, the cloud image can be projected on the main subject and arranged in a manner that is not possible when the latter is invisible. The technique of such double printing was recently the subject of a communication of Sir William Abney to *Photography,* and is fairly easy. It was first shown that mere washing in water, after the first exposure, was insufficient to remove the developer and allow of a second exposure. The technique finally adopted, with perfectly satisfactory results, is as follows:

First, expose and fully develop the main subject. Wash in two or three changes of water and immerse in dilute hydrochloric acid, 1 in 80. Wash twice, and immerse in a dilute solution of bicarbonate of soda. Wash twice, and place wet on the easel and re-expose for the clouds, giving four times the normal exposure on dry paper. The same process is applicable to the making of transparencies and lantern slides. For the latter, simple full washing in water without the two baths is sufficient.

A New Intensifier

The Photo Revue gives the formula for a modification of the mercurial intensifier. The image is bleached in the usual way in a solution of mercuric chloride, washed, and transferred to a bath of:

Alum	30 parts
Hypo	22 parts
Water	1000 parts

The image, consisting of the mixed sulphides of silver and mercury, is brownish black and permanent.

The Preparation of Blue Print Paper

M. E. Forestier, writing in *Le Nord Photographe,* gives the following formula for a cyanotype paper, which he says yields very intense blues and pure whites:

Make three solutions:

A.	Ammonia-citrate of iron	27 grams
	Liquid ammonia	a few drops
	Water, distilled	100 c. c. m.
B.	Potassium ferricyanide	13 grams
	Water	100 c. c. m.
C.	Oxalic acid	saturated solution.

Mix

A.	26 c. c. m.
B.	20 c. c. m.
C.	6 c. c. m.
Alcohol	20 c. c. m.
Water	20 c. c. m.

The mixed solution must be used at once; it does not keep. After printing, use a few drops of hydrochloric acid in the wash-water.

A Stereoscope for Viewing Projections on the Screen

In the January 3d, 1904, number of the *Photo Revue*, M. René d'Heliecourt describes a kind of telescopic stereoscope in which the angles of divergence are adjustable so that it may be used for viewing stereograms so projected on the screen that the two elements are side by side, or as in the case of an ordinary stereoscopic slide. The stereoscope in question consists of two positive lenses which serve as object glasses, and these may be similar to the lenses of an ordinary stereoscope. In addition there are two concave eye-glasses, and so far the device is not very different from an ordinary opera-glass. The adjustment is made by gradually di-centering the object-glasses, a lateral separation being made by means of a screw adjustment. It is obvious that a moderate amount of mechanical ingenuity should convert any ordinary opera-glass into a stereoscope of this kind.

Photography in Colors

Some years ago the inhabitants of San Francisco will remember having seen in the window of a leading optician on Market street a number of colored photographs. The skies were very blue, and the tree trunks very brown, and the leaves very green. Some of them were rather pretty, but taken as a whole they were not calculated to make Keith green with envy or to tempt Cadanasso to exchange his palette for a camera. These colored prints were made by printing an ordinary negative on a carbon tissue, made of several overlying layers of different colored pigments—red, yellow and blue. These colors corresponded with the chief densities of the negative, namely—shadows, half-tones and high lights—which in the average landscape would roughly correspond to soil and tree trunks, foliage, and sky, the light as it penetrated fixing one, two or all three of the layers of pigment. As I remarked, the result was not a striking success, as on good theoretical grounds, it could not be; and I should not have referred to it here but for the fact that our enterprising German friends have rediscovered the corpus and are vaunting it as a great thing. The discovery is ascribed to a certain Lieutenant Edler von Slavik, and of course no mention is made of the San Francisco worker of long ago. The tissue is being manufactured by the firm of Heskiel & Company, and is to be shortly on the market. Gædicke's *Wochenblatt* says that it is to be produced in various combinations of tints, making it applicable to portraiture as well as landscape. There is no doubt but that a proper application of pigment layers would in some cases give very charming results, although not a true reproduction of the natural colors. This is particularly likely to be true in cases where the original scene is in simple color relations, —a summer sea on a sandy or rocky shore, a twilight landscape, and so on. Personally I am convinced that if such effects are sought for they can be better and more easily obtained by my own modification of the carbon process (which has also been appropriated by another German firm), involving development on transparent celluloid, and backing with the desired colors.

Intensification of Negatives Before Fixation

I think that it is not generally known that negatives can be intensified before fixation, and that according to the discoverer, Dr. R. A. Reiss, such intensification is not only denser but also of finer grain than by the ordinary method. Furthermore, if it turn out to be insufficient, reintensification after fixation can still be resorted to by any of the ordinary intensifiers. Mr. A. Ballin, in Gædicke's *Wochenblatt*, gives the following directions:

Develop for softness in a weak and alkaline developer. Wash ten minutes and place in the following bath:

Mercuric chloride	5 grams
Potassium bromide.....	5 grams
Salt	5 grams
Water 100	c. c. m.

The image will be bleached in about five minutes. Wash in the dark for from half to one hour, and redevelop in the original developer and fix. The hypo bath must not be more than slightly sour.

The third edition of the "Bausch & Lomb Souvenir of Prize Pictures," now fresh from the press, duplicates all the excellent qualities of the two former editions, which were sold out within a few days of issue. This work appeals to the photographer, chiefly because of the artistic superiority of the reproductions.

With the Process Workers

By Will Sparks

Glucose Enamel Solution

What is "the best" enamel solution is a question that is often asked. To answer, is impossible, because what might be the best for one job might be very ordinary for another. But if the best "all round" solution is wanted, here is one that is probably giving more satisfaction in commercial work than any other in use today. One of the largest photo-engraving houses in Chicago uses it entirely:

Water	10 ounces
Bichromate of ammonia	120 grains
Albumen	1 ounce
Glucose (estimate)	40 grains
Glue (ordinary Le P.)	4 ounces

"Strong and weak negatives can be handled as they should be by giving a thick coat for strong and a thin coat for weak negatives. When developed, put into a solution of

Chromic acid	22 grains
Water	16 ounces

being careful to keep the solution in motion when plate is first placed in it. Leave in solution two or three minutes, then dry over a whirler after rinsing with water. Do not dry with alcohol. This enamel will keep almost indefinitely if corked up."

Importance of Litmus Paper

Too much stress cannot be laid upon the importance of having good litmus paper in the dark-room. Many operators have troubles they cannot locate which would soon locate themselves if the stock of litmus paper were as good as the chemicals which they are testing. Litmus paper should be used early and often. Buy none but the very best, put up in glass tubes. Be sure that it is fresh, and never allow anybody to sell you a litmus paper that has a hard, solid body. Always use a paper that is soft, so that the solution can take hold of it at once. Use red litmus paper to test for alkali, and blue paper to test for acid. The length of time it takes to turn red litmus paper blue, or blue paper red, will denote how strongly alkali or acid the solution is. Always keep litmus paper in well stopped bottles, and away from the light. Never mix the red and the blue, and keep both as far away as possible from the fumes of the etching-room.

Sugar in the Developer

After practical abandonment for many years, European process-workers are returning to the old "sweet developer." Many of them assert that its advantages in half-tone negatives are more than enough to compensate for the little extra trouble. By its use they do not have to strain their eyes in the dark-room, as the possibility of carrying development too far is reduced to a minimum. In fact, if exposure is perfect, the operator may develop as long as he likes without danger of getting a "deposit" on the clear part of the negative. The addition of sugar to the developer is called "organifying." If you wish to try it, all you have to do is to add one half the weight of granulated sugar as you have proto-sulphate of iron in the stock solution. The drawback to this, as there is to every other advantage, is that the solution does not keep very well. It must be mixed in smaller quantities and more frequently.

Combined Screen and Half-Tone Plates

For some time there has been a demand for cuts combined of both half-tone and line engraving. They certainly are pleasing, and add greatly to the appearance of a printed page. There are two methods of doing this, both more or less successful, according to the operator. Both methods are possible by the wet-plate process, but only the one that will be described first can be used with dry plates. This work can be done only with ease and certainty in a camera which has a screen gear independent

from the dark slide. Stock designs are prepared for the line work, and masks are cut, both the inner and the outer portions of the mask being preserved. The inner portion is fixed to a piece of plate glass the exact size of the ruled screen, and the outer portion is attached to the screen itself. The exact position in the holder must be marked, so that the glass plate may be put in its place with certainty. The mask on the screen and on the plain glass plate should be so accurately placed that when one is laid over the other with their edges coinciding, the inner and outer masks fit together perfectly. The first exposure is the half-tone one, the picture being focused with the masked screen in position. Naturally, when the exposure has been given, the sensitive plate will be unaffected under the mask. Accordingly the shutter can be closed, the dark slide taken out and the screen removed, the masked glass plate being put in exactly the same place. The line copy is put up and focused so that the space to be occupied by the half-tone is exactly covered by the mask. The dark slide is returned to the camera (the sensitive plate not having been disturbed, of course), and the screen and the screen gear containing the masked glass plate brought close up to the sensitive plate, so that as little light as possible can creep under the edges of the mask. Make the line exposure, and the trick is done. The negative is developed, and is a combined line and half-tone which is printed on the zinc at one operation. The other method is simpler for the negative-maker, but more work for the stripper. The half-tone and line negatives are made the proper size. When stripping the negatives, to reverse them, they are turned on the same piece of glass, one negative over the other, so that they register perfectly. They are squeegeed down, and then with a sharp-pointed penknife the two films are cut through just where the half-tone and line negative should join; the upper film is then stripped off, also the portion of the under film that is not wanted; the piece of the upper film is then put in its proper place in the under film, and the combined negative is complete.

The New Lens

The year just past really added one wonder to the science of photography, and one that will be of the greatest use to the process-worker. This is what is known as the "liquid lens," which is so fast that it will take snap-shots by gas-light. The principle of the lens is that of a piece of flat glass, like a window, for instance, that admits all the light that falls upon it. But inside this flat glass there is a flat, bubble-like cell filled with liquid that collects the rays. With this lens a set of three-color, half-tone negatives have been made directly through the line screen and color screens in less than forty seconds by ordinary daylight.

Insoluble Gelatin

The principle of most of the modern photo-mechanical processes depends upon the solubility and insolubility of gelatin. For the purpose of rendering gelatin insoluble are dozens of chemicals—alum, bichlorid of mercury, bromid of cadmium, chrome alum, chlorin gas, chlorid of platinum, formalin and tannic acid are used. Of these, chrome alum is the best, but it is not always entirely satisfactory, owing to its acidity. Any attempt to render a chrome alum solution alkaline will result in throwing down a precipitate. Professor R. Namais has been experimenting in this matter, and he finds that taking a ten per cent chrome alum solution and adding ammonia until the solution becomes turbid and slightly alkaline, then adding a ten per cent solution of ordinary alum and boiling for some time, a solution is obtained that will harden gelatin so thoroughly that it is not affected by acids. This is a valuable fact for the progressive process-man to know, and one that he is sure to make use of if he does any experimenting in the way of study.

Mounting Color Blocks

A printer asked me last week if it were possible to mount two or more three-color plates of irregular shape on the same block so that the whole set would register. Yes, there are two ways, and both are satisfactory. First mount one lot, preferably the blue, in whatever position you wish. Then pull a press proof of this on either transparent celluloid or fine bristol-board. In the case of the celluloid lay the impression over the block and fit the cuts underneath; move them around until they are in exactly the right place. Then put in your nails without disturbing the cuts. In the case of the bristol-board, lay the impression face up on the imposing-stone. Put

a little glue on the backs of the cuts. Fit the cuts, face down, in contact with the impression, and then lay the block over them. Put a weight on top until the glue dries. When this is done, put in the nails and the cuts will register to a hair. Some blockers put a touch of paste on the face of the cut before fitting to the cardboard, but I have not found this necessary.

New Color Filters

Penrose & Co., of London, make the announcement, interesting to three-color process-workers everywhere, that Mr. Sanger-Shepherd has placed in the market a set of three-color filters. Each filter consists of two pieces of optically worked glass bearing the tansparent colored film, or films. The plates are sealed together in Canada balsam. Their size is 3¼ by 4¼ inches, and their cost is about $25. These filters are only effective when used with the Rapid Spectrum plate.

Three-Color Process

The demand of the process-worker at the present time, is three-color half-tones. They are what the people want, and as soon as the three plates can be made for the same price as three black blocks, instead of twice the price as charged at present, the business will know no bounds. The collodion emulsion is doing this to a certain extent, and some French workers claim that the three plates can be made at a reduction. Those who desire to study this process are advised by the best workers in the world to buy a complete outfit and use it for that purpose alone. Doing color work with ordinary apparatus that is constantly used for ordinary job work, has been found to be very unsatisfactory, and at the same time expensive, unreliable and imperfect. The manufactured plate is also growing in favor for this work.

Dry Plates in Process-Work

Slowly, but surely, the dry plate is working its way into the photo-mechanical processes and replacing the wet plate just as it did in general photography. Just how far this will go it is not possible to say. The principal advantages of the wet plate are economic rather than technical, but these are slowly disappearing. As proof that the dry plate is coming into use, we have only to read the lists of the plate manufacturers. Nearly every one in the world is now making "process plates." In England a plate is now made that produces perfect half-tones, using three stops of the usual size, with a total exposure by ordinary electric-light of forty seconds. This plate will fix in thirty seconds. Now comes a delay over the wet plate, because the dry plate must wash for ten minutes. This is then partly made up for because the dry plate requires no rubber and no collodion, but can be taken right out of the wash-tank and stripped. While the film is still wet it can be cut into any shape, and being very tough may be pulled fom the plate without danger. And lastly, this plate may be dried over a stove.

Archetype

A process depending on the sensitizing of the negative itself with bichromate has been patented by two Italian inventors who describe it as "archetype." So far as can be gathered from the full specification, the process is as follows:

Bichromates are used in order to produce a positive relief picture, direct on the negative itself, avoiding thus all other secondary operations, such as the reversing of the picture, reproduction of other positives, and the like. After having obtained the negative, the same is developed in a solution of amidol and sulphite of soda (other developers not excluded), and afterwards fixed in a bath of hyposulphite of soda and then dried in a dark place.

The dried negative is then immersed in a solution of bichromate of potassium, or bichromate of ammonium, and alcohol in suitable proportions according to the nature of the negative. Afterwards, the negative is again dried in a dark place, and is then placed on a specular surface, such as a silvered plate, or other polished metal plate, or a layer of mercury, or any other reflecting surface. The film placed on the reflecting surface is now exposed to the action of actinic light with the side of the glass plate turned towards the natural or artificial light for the necessary period, which depends on the intensity of the light. After this, the negative is thoroughly cleansed in fresh water, and after it has been completely dried, is ready for the photo-archetype. This photo-archetype may be used for producing impressions with printing ink on paper, cloth, or any other even surface.—*The Process Photogram.*

The Amateur and His Troubles

By Fayette J. Clute

Timing Carbon Tissue

An Illinois correspondent wants me to recommend an actinometer for carbon printing. Candidly, I never used one. I can guess pretty closely at the right time, and if I am at all in doubt and the light fairly constant in quality, I put a piece of Solio under the negative and note the time it takes to print almost as dark as required for toning. That, I find, is the right time for carbon tissue sensitized as I sensitize mine. Others may use a weaker or a stronger solution or may immerse for a longer time. A few experiments will give one a guide. If the negative being printed from is a normal one, or one known to print at the same speed as another that I have, I simply put this other negative out with a piece of Solio under, printing the two at the same time. When the Solio is printed to the required depth, the carbon tissue is also printed to the right depth under the other negative. As all my negatives have a figure in the upper right-hand corner indicating the required exposure for Carbon Velox at a certain distance from a standard light, it is very easy to find a negative of like printing density.

When to Stop Development

The beginner early learns that a clearly-defined image on his plate is by no means an indication that if fixation be at once gone through with the resultant negative will give a well-defined image in the print. He must carry development further. This is attempted with the result that his unpracticed eye turns out a variety of negatives; all judged at the time. to have been carried to about the same degree of density, yet as varying in their printing qualities as they well can be. Endeavors have been made to give a rule by which one might determine when the process of development should be checked, but the advice given, at least such as I have seen, is practically useless. The dictum that the density in the plate should be comparable to the shadow cast by the fingers as the plate is held in front of the ruby light, is misleading. To tell the truth, I doubt if any rule could be given that would be brief as well as intelligible. Experience, of course, is the best teacher, but we can perhaps assist that rather high-priced instructor by noting a few facts that by her method are slowly acquired. An under-timed plate, carried to a certain degree of opacity in the high lights, will suffer less apparent loss of density in the fixing bath than one that has been fully or over-timed. The same applies to a plate exposed upon a subject containing great contrasts as compared with one exposed on a subject lacking in length of scale. It should also be borne in mind that in the case of an under-timed plate, the scale of gradation being steep on account of the lack of intermediate tones between clear glass and practically unprintable opacity, our aim should be to hold back the high lights, and for that reason even less density should satisfy us than in the case of a plate exposed on a subject that is "flat" or lacking in well-accented lights and shadows. An over-timed plate, as well as one exposed upon a flat subject, should be carried to a further apparent density, both to overcome the added amount of seeming reduction in the fixing bath as well as to secure the additional density demanded by most printing processes at our command.

Lighting and Development

An amateur, out in the west end of the city, has fixed up a studio in the upper part of a barn-like building in the back yard. His light is only about four by seven feet, and he is constantly complaining that he can not do good work, because his light is so small. There are not a few professionals with the same idea. They think a large light requires less exposure than a small one. The idea is wrong; at least in the general application of the principle. In lighting a bust figure, for instance, with the light all around the subject, practically lighting the face without shadows, a longer exposure is required in order to permit of

developing for shadows. With the light cut down and reaching the subject in such a way as to give good shadows, one exposes for these shadows and then has but to develop for the high lights. With a flood of light, if development be stopped when the high lights are of sufficient density, the shadows, such few as there may be, will be entirely without detail. With the better way of lighting this is not the case except in under-exposure.

Hydroquinone and Halation

As I have said before in this department, right development will go a long way toward preventing the appearance of halation. A writer on the subject told us in another publication some time ago that hydroquinone would give more halation than would metol. Another writer ridiculed the statement shortly afterward, and in order to test the matter, I made duplicate exposures on a subject that promised good halation where some tree tops cut against a bright sky. One was developed with a good, quick-working Edinol developer, and the other was given prolonged development in a pyro developer, well restrained with bromide. These were the only two developers I had at hand at the time, but the result would make a good advertisement for a plate backing, using the pyro negative as an example of an unbacked plate, and the other to show the advantage of a good backing. Of course the quick development secured with the Edinol developer had much to do with the improvement, but at the same time, my results prove that a slow-working and density-giving developer should be avoided where halation is feared.

About These Competitions

Why do not more of the amateurs go in for these competitions? It is no common thing to hear one of them say, after the thing is all over and the prize-winning pictures reproduced: "I have a negative of a like subject that is much better than the one that took that prize." Perhaps he has. How are people going to know it unless he send in the prints? Every amateur of six-months' experience is pretty sure to have at least one good thing in his collection. Nine times out of ten he does not know it. How often do we find the advanced workers of today digging up things they made when they first began using a camera and gaining great praise for their artistic quality. There is no particular artistic ability to be given credit; at least not in the production of the picture. The artistic ability comes in with the increased knowledge of what constitutes a picture which has enabled the producer to realize that the negative made a year or two before and laid aside as worth but little, is in truth a picture. If you are in any doubt, get a few proofs together and submit them to some one whom you know has the required art knowledge.

Aquarium Cement

I received a letter this week from one of our subscribers, who wants to know how to make the kind of cement they use in constructing aquariums. The following has been highly recommended for the purpose: Take ten parts, by measure, of litharge; ten parts plaster of paris; ten parts fine, dry, white sand and one part finely-powdered resin. Mix thoroughly by sifting through a fine sieve, and just before required for use, make into a rather stiff putty with boiled linseed oil. It sticks tenaciously to wood, metal, stone or glass, and hardens under water. It will withstand weak acids as well as alkalis. At least three days should be allowed after cementing before the article is put to use.

Making Quick Proofs

One can always learn tricks from the worker in special lines. A few Sundays ago, I was to meet a newspaper photographer down town in the morning and make a trip up the road. He set the time a good quarter of an hour before the train left, because, he explained, he must run up to the office and go over some proofs he had made the night before from negatives made the same day. Come to find out, he makes a practice of proofing all his negatives even before all the hypo is washed out. After fixing, the negative is washed for a few minutes, a sheet of bromide paper placed in a tray to become thoroughly wet, the negative slid underneath, and both removed together and placed in a printing frame. The front of the negative is wiped free from water, and the exposure made; a somewhat longer exposure being given than would be the case ordinarily. The print is developed, and the negative placed in the washing

rack to insure the removal of the remaining hypo. Quite often prints and negatives wash together in the same washer. At any rate, prints and negatives are both dry and awaiting his coming in the morning. That much is certain.

Acetonesulphite and Over-Exposure

In correcting excessive over-exposure as one of my correspondents has been trying to do by using acetonesulphite, it is better, with some brands of plates, to secure the desired density by intensifying the negative as an after-process, rather than to attempt the securing of full density with the developer containing this chemical. Certain emulsions contain several forms of silver salts, some of which are more likely to give fog under trying conditions than does the bromide of silver, which alone forms the sensitive part of some brands of plates. We will have an article in an early issue dealing with this matter, but as I have seen some most surprising results from the use of this chemical, no one should have the least trouble in availing himself of the great advantage which it offers.

Principles of Gum Printing

The fundamental difference between carbon and gum prints has been the subject of investigation by Harold Holcroft (*Photography*, December 3d), who finds the distinguishing characteristic of the latter in that the chromatized gum after insolation is still, to a large extent, soluble by the continued action of water, whereas the chromatized gelatin in the carbon process shows no such range of solubility. The writer lays down the following deductions, many of which have a practical value:

1. In any case the layer of pigment and gum must be thin enough for the light to penetrate through to the paper.

2. The length of exposure will increase with the actinic opacity of the pigment layer.

3. The minimum exposure must be long enough for the light which passes through the densest part of the negative to penetrate right through the pigment layer, and fix the high lights to the paper.

4. A longer exposure than this within limits may be compensated for by longer soaking.

5. As the range of tones given is short and steep, the negative should correspond in its gradation: thin, clear negatives, with the detail pretty strong, are usually found to give the best technical result.

6. If any addition to the gum mixture could be found which would have the effect of retarding the rate at which the gum tends to become less easily soluble under the influence of light, while not affecting the point at which the light commences to act, it would lengthen the range of tones in the print.

Multiple coating is so far the easiest way of lengthening the scale of tones.

The question has been considered without any reference to the effect of brush or any other kind of mechanical friction in development.

The Stretching of Wetted Prints

When a print is mounted wet, the mount, on drying, curls in one particular direction. It may cockle or twist as well, but there is always a distinct curl. This arises from the fact that when paper is wetted it expands, and on drying, tries to return to its original dimensions. Being prevented by its adhesion to the mounting board, it pulls the board over, in the direction of the contraction, hence the curl. The expansion of paper, only, however, takes place to an appreciable extent in one direction—that is, in the width of the original sheet; or in the case of paper made in continuous length, in the width of the roll, and in that direction the expansion may be far greater than most would surmise. An ordinary bromide print trimmed while dry to 12 by 10 inches, experimentally tested, was found to measure after one minute's soaking in water, 12 7-16 by 10 1-16 inches. In trimming a print that is to be mounted wet, this expansion should be allowed for. If, for instance, a 12 by 10 portrait taken in the usual way to form an upright picture, is to be mounted on an ordinary commercial plate-sunk mount having a tint 14 by 12; if it be trimmed with the intention of leaving an equal space, top, bottom, and sides, but without regard to the expansion of the print; and if it happen that the sheet of bromide paper be cut with its longer dimension the width way of the roll, the margin at the sides will be greater than that at the top and bottom, which is extremely ugly. In the home-making of mounts in which "tints" are used, it is particularly important to regard the direction and stretch of the tint paper and the print.—Alexander Mackie in the *Photogram*.

Notes and Comment

The Century Camera Company of Rochester, New York, announce that their 1904 catalog, which they claim will eclipse all their former efforts, will be ready for distribution in a few weeks. Requests should be sent now, if you wish to be sure of obtaining a copy.

A fire of serious consequence occurred in our factory during the evening of January 18, 1904, destroying all cameras completed and in course of construction and also involving the loss of a large quantity of other apparatus and supplies. The camera department is affected chiefly, and at present we are unable to anticipate the date when we will be prepared to fill orders. Work will be resumed with all possible despatch, and we deeply regret that our misfortune must inconvenience our friends for an indefinite period.

The optical departments are intact and in a few days we will be enabled to execute orders for lenses, microscopes, binoculars, etc., without delay.

We request the kind indulgence of our customers with orders unfilled, for repairs or other transactions uncompleted, and will endeavor to attend to such, as promptly as circumstances will allow. Yours sincerely,

GUNDLACH-MANHATTAN OPTICAL CO.

Winter Photography

By the time this reaches you it will be perhaps a little late to advise much in this line, but at the same time, there is no better opportunity of preparing one's self for another winter than during these coming spring months, when one's own experiments in that line are still fresh in the mind. Advice at such a time comes more as a comparison of experiences and for that reason is more easily assimilated and retained than would be the same assistance given when such work was a matter of a month past and gone. The December number of the *Photo-Miniature*, "Winter Photography," by Osborne I. Yellott, is just the thing for the worker who wishes to know where he has made mistakes and missed opportunities in this class of work.

Mr. W. I. Scandlin, of the Business Development Bureau, Brooklyn, New York, sends in a little booklet entitled "Modern Portraiture by Photography." The booklet is designed to be sent out by the photographer, with his name printed on the front cover as an advertisement. The first page is devoted to remarks regarding "Modern Photography," followed by "Suggestions to Sitters."

The booklets are furnished to studios at $15.00 per thousand, larger or smaller lots at special prices.

From the January, 1904, issue of *El Boletin Commercial*, published by the Latin-American Club and Foreign Trade Association, of St. Louis, Missouri:

"With sincere pleasure we present to our readers the portrait of the new president of this association. Mr. Cramer is vice-president of the famous firm of G. Cramer Dry Plate Company, of this city, whose products are well known in many parts of the world, and whose reputation ranks ahead of all other firms in its line. Great success has crowned the efforts of this firm, to which happy results the subject of this sketch has contributed in a large measure.

"Mr. Cramer has traveled extensively in Mexico and Cuba, and undoubtedly his many friends in those countries will observe with much pleasure the distinguished honor which has been conferred upon him by electing him president of this famous organization, an honor which he justly merits.

"This association is proud of its new president, and we predict all kinds of prosperity during his administration."

The C. P. Goerz Optical Company, New York, have just issued a new lens catalog, which is, in many respects, the most complete lens list ever distributed by these manufacturers. The book is beautifully illustrated, printed on heavy coated paper, and the article, "How High Grade Lenses Are Made," is interesting and highly instructive. Send for one.

The Akron Salon

In announcing to the photographic world the First Akron Salon, the Akron Camera Club does not want the impression to be created that it has adopted a pretentious title for a club exhibition of simply local interest.

The club realizes that the term salon is expressive of an exhibition of national scope, and to be conducted successfully and worthily it must merit and receive the support of the best work of the country; also that this work should receive careful, impartial and competent judgment, according to high ideals of modern art. It will then carry with it an honor that is real and worthy of the best efforts of its maker.

This club is probably the oldest in Ohio, having been organized twelve years ago, and has held many successful home and inter-state exhibitions. Prominent workers have urged us in the past to hold a salon, but realizing the importance of such an exhibition, if worthy of the name, we have waited until now, and this year, instead of our sixth annual exhibition, the First Annual Akron Salon will be held. Its scope is national, and the foremost object, which will be at the time uppermost in the minds of the salon committee, is the advancement of photographic art.

Art by means of the camera, without any restrictions as to treatment or means of expression, will be the principle governing the judgment of the work submitted.

Monthly Photographic Contest

Conditions: *The Book-Lover* invites photographers to submit prints for monthly prizes. First prize, $5.00; second prize, $3.00; third prize, $2.00; and $1.00 for the non-prize-winning pictures published. Write title and name and address on back of prints.

All pictures submitted shall become the property of *The Book-Lover*, and paid for if used. Pictures submitted should be suited to reproduction in *The Book-Lover*, and may be of persons, places or things, literary, musical, artistic, dramatic, etc.

Address prints to W. E. Price, editor *The Book-Lover*, 30-32 East Twenty-first street, New York, marking "Photographic Contest" on the envelope.

MARBLES

BY HENRY HALL

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

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A Simple Method of Correcting Local Defects in Negatives

By BERNARD C. ROLOFF.

Variations of the following process may have been in use for some time by others, of that I have no doubt, yet this method which was explained to me by a fellow worker as being his own discovery has the advantage of being not only theoretically perfect, but entirely practical as well. It is extremely simple and, if the manipulation be found faulty on account of the inferior skill of the worker, or for other reasons, the stain can be easily removed from the negative.

For regulating density of foreground, white drapery, holding back or restraining portions which are not intended to print as dark as others, printing in skies, correcting hypo stains, and many other purposes, this method offers unlimited possibilities for the amateur with artistic abilities, while the worker who is not an artist may still use the process in its simpler forms without tedious practice.

A long preamble to a simple process, but it is just this simplicity which causes a great many amateurs to discard or overlook methods through which the best results are obtainable, while the more complicated mechanical and chemical methods are greedily absorbed through the mistaken impression that their intricacy must certainly secure success.

The method about to be described has, for its basis, the well-known valuable staining action of anilin dyes. The idea is to use a certain dye which has been found to serve the purpose best, and stain the film of the negative at the portions desired. To achieve this result successfully, it is necessary to make a number of applications of a weak alcoholic solution of the dye.

The dye found to be most suitable for this purpose is the red, which may be procured at any drug house. Other dyes, such as orange or yellow anilin, may be used, but the first mentioned is the one which gives the most uniform results. The solution should be as follows:

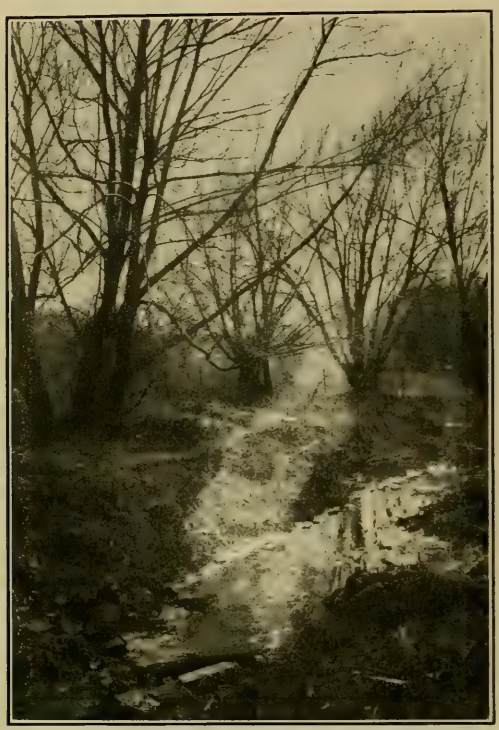
Solution A—alcohol (wood), 2 drams; anilin, red, 3 grains.

Solution B—alcohol (wood), 2 drams; anilin, red, 5 grains.

Weaken with 1½ drams alcohol, if too strong.

Ignore sediment, if all the dye does not dissolve.

This produces a somewhat weak solution, but it is not advisable to have the color strong enough to give a dense stain, as this would defeat our object, viz: a gradual stain, which is barely perceivable at the edges, and which shows no line of demarkation at any point. This latter requirement depends upon the skill and ability of the worker, but by following these explanations and directions any one will be able to apply the stain successfully in the most approved manner.



No. 1

To apply the solution, use a piece of very soft cloth, perfectly lintless, instead of cotton, which latter, no matter how pure and soft, always leaves a stringy trail of fine particles of lint behind it. All the work may be done in broad daylight, for the light has no appreciable action on the stained film, so that the negative may be taken right before a window and set up at an angle of about forty-five degrees (as in retouching), with a sheet of white paper under it to reflect the light through the negative. The negative, however, should be set solidly so that the circular motion used to apply the stain will not move it, and possibly cause a smudge or stain where none is desired. Having secured it in place, the cloth is now dipped into the weak alcoholic solution (A) of stain and applied directly on to the dry negative on the portion it is desired to stain, care being taken that the circular movement used be very light, no pressure being necessary at first. The first application should entirely cover the part to be stained, with one movement clear to the edges, while the next and following applications may be carried on nearer the center of that portion. (The last applications may be made with the stronger solution (B), if necessary.) Continued applications are made in the above manner until the stain becomes visible to the eye and your judgment will aid in determining whether or not enough has been applied. The solution being an alcoholic one, the stain rapidly dries, and in a very short space of time, the negative will be dry enough to make a proof to determine exactly if enough stain has been applied. If, by accident, or ignorance, too much has been applied, a solution of alcohol laid on in the same manner will remove as much as is desired.

No. 2

No. 3

No. 4

Before staining is commenced, it would be well for the worker to make a print of the negative, so that a comparison may be made between that and proofs made after staining.

We will suppose that our negative contains good detail and proper gradation in the foreground, but the sky is too dense, although we know that clouds were there when the picture was taken. It is only necessary to stain the landscape portion, and if the stain extend over the edge on to the sky portion very slightly, it will not matter (unless the stain at this edge be too dense), it being sometimes preferable to have the sky darker near the top than at the horizon, as it appears in reality. Practice makes perfect, and although any one will be able to do a few "stunts," such as staining the landscape portion of a negative, allowing the sky to print darker as just described, yet, on trying a few times on waste negatives, the amateur will be surprised at his own dexterity in "doping" in clouds where absolutely none existed, staining a face in a portrait negative that prints too dark, or in securing detail in any desired portion of a blocky negative (if the detail be there), by staining the other portions.

It is an easy matter to correct a hypo stain, no matter how irregular it may be. Many of us possess such negatives and the print always appears in a lighter shade at the portion affected by the hypo stain. This is corrected by staining the negative (while dry), all around the stained portion, until a proof print no longer shows the difference in density.

Illustration No. 2 was corrected in this manner, and now fails to show any difference in the printing density. The stain, in this case, was of an oval contour near the left center of the picture, and a proof of the negative before staining showed a picture which seemed to be entirely spoiled.

Illustrations Nos. 3 and 4 show what can be done with a negative possessing a white-paper sky. This result was attained by simply staining the entire landscape portion as described herein. It may be further stated with respect to printing in skies that on the depth of stain applied depends the tonality of the sky, and it may be carried to any degree.

It will be found that a thin negative may be greatly improved by this staining, either by staining the entire surface, if under-exposed, or, if the thinness be from over-exposure and under-development (and it is not desirable to intensify in the usual manner, and then reduce), by staining all but the high lights, thus giving the needed contrast in a most delicate manner, and if this be carefully done with a solution properly prepared, not too strong, the print will show absolutely no sign of "doctoring." The method, however, refers more particularly to printing in skies, restraining portions which it is desired to print darker, and correcting the appearance of hypo stain, and a trial will certainly demonstrate its extreme value for these purposes.

Ornate Cards Are Not Artistic

The more ornate the card, the more it divides the attention with the picture. Scrolls, fancy cutouts and all manner of ornamental (?) double printing, is monkey business that detracts from the value of the real work.

THE STABLE BOY
by HENRY HALL

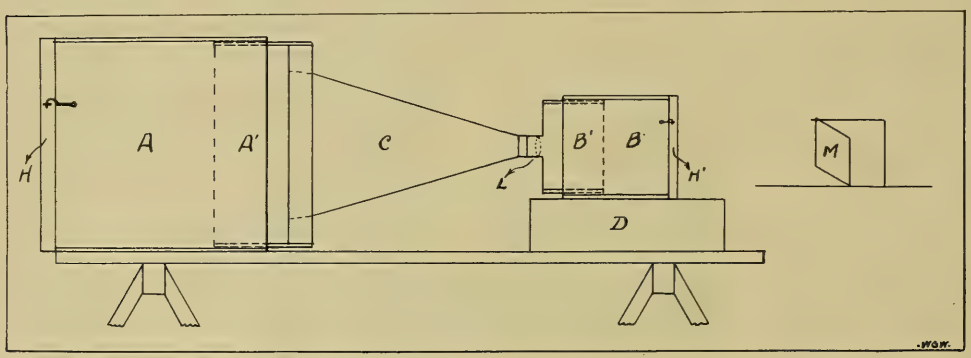
Enlarging Photos at Home

By W. G. Waldo.

Who is there, interested in amateur photography, who has not some particularly well-executed picture well deserving of enlargement? And yet there are comparatively few who care to pay the price charged by the professional photographer for such work, and the enlarging cameras on the market are out of reach of the average amateur's means.

By means of the apparatus described below, the cost of which is but a trifle, any amateur can enlarge his photos, whether taken with a small box camera, or an elaborate one. The dimensions given can be altered at pleasure, to suit the size of negative to be enlarged, and the size of enlargement to be made. Any paper made for enlargement purposes may be employed.

The apparatus is very simple, particularly so if one's camera be provided with a bellows and open back. However, as many of us are not so fortunate as to possess such an instrument, an arrangement adapted to any camera will be described.



First, a board five feet long and about fourteen inches wide and one inch thick should be provided if one is to do much work with the instrument, otherwise a table-top will suffice. Obtain from the grocer two or three wooden boxes, such as are used for shipping canned goods, made of thin, planed lumber. See that the boards are free from knots and cracks as far as possible.

Having the material at hand, make a box (A), open at both ends, eighteen inches square, and eighteen inches long. Make a second box (A'), six inches long and of such a size that it will fit snugly into the large box. Leave one end open and make the other end of two-inch material. Before fitting this board in place, however, cut, with a key-hole saw, a circular hole in it large enough to contain the large end of a pasteboard megaphone (C). If a megaphone be not obtainable, a cone-shaped tube can be made from several thicknesses of heavy paper, or flexible cardboard, the small end to be just large enough to fit snugly over the lens of your camera. Secure this cone-shaped tube in place by tacking it inside the hole in the end of box (A'). Paste a lining of black paper in both boxes and cone.

Get at the photographer's a plate-holder (H), of the size you wish your enlargement to be (here it will be eighteen inches by eighteen inches), and cut the wooden partition out, or make a wooden frame of the right size.

In this frame, or plate-holder, insert a piece of ground glass the right size, and if your camera be provided with an open back and a bellows, your apparatus is complete, as all that remains to be done is to place the camera, so that the lens is on a level with the small opening of the conical tube, and in close contact with it. Then place your negative in a second plate-holder (H') from which the partition has been cut out, at the open back of your camera, and having placed a mirror (M) so that it will reflect sunlight directly through the negative, focus the image on the ground glass by means of the sliding boxes and bellows, and remove the ground glass. Insert in its place a holder containing a couple of strips of paper and make a trial exposure.

Repeat until the right length of time is obtained and expose the full sheet, developing according to directions given with the paper. If, however, your camera have not an open back and bellows, it will be necessary to make a second pair of boxes (B and B') arranged the same in every particular as A and A', except that they should be the size of the negative. Fasten the plate-holder containing the negative in place as described above, securing it by means of brass hooks on each side of the box, and an eye on each side of the frame. Arrange mirror, and proceed as before, using as a lens for the instrument the lens of your camera, mounted in its tube, as shown at Fig. 2. If, however, your lens cannot be removed, one may be purchased at a low figure and mounted in a tube of pasteboard. It must be remembered that the quality of the enlargement obtained will depend upon the quality of lens used, and hence, the better the lens, the more satisfactory the enlargement.

Beware of Dirt

The photographer who thinks it makes no difference even if he does use the same tray for both toning and fixing, is making a great mistake. The loss of two or three batches of prints by there being a trace of hypo in the tray used for toning will do more actual damage, in the way of loss of material, than the cost of several trays. To the toning solution hypo is dirt, and dirt is a great enemy to the photographer. There is other dirt and all is bad, but the using of a tray for one purpose, one day, and for something else, the next, is the worst.

Dirt on the lens may cause fog, at least dimness, on the plate it causes pinholes, on the prints it keeps the toning solution from doing its proper work, on the mount it prevents the print from lying smooth. If you employ too much dirt in your manipulations it will cause the cold chills to run down your friends' backs when they look at your pictures. Keep everything clean,—it pays.

A little vaseline applied to a glass stopper will prevent it from sticking.

For clean labels on bottles, coat a small space with varnish, attach the label, and then cover with varnish, allowing same to lap over the edge of the label. When dry, the bottle can be washed without injuring the label.

The "Steadman-Trager" Method of Correct Exposure (Without the "Bugbear")

By Frank Morris Steadman.

The only reason that the matter of exposure ever became complicated was because photographic workers insisted that the light could be judged with the eyes. That this is impossible is amply proved by the innumerable schemes that have been devised in the way of exposure tables, made from individual worker's experience, of which the interesting one in the February Camera Craft is an example. Now, if the eyes can judge the light, why not just *look and know* what the exposure is? But if the eyes *cannot judge the light* (which, when considered in connection with exposure, etc., we should speak of as actinism), then why not simply allow that light to do a *visible amount of work,* and take the number of seconds required, as a measurement of the light's actinic power?

This will give us a simple *numerical* expression of the light's actinic power as measured by a *visible physical constant.*

In the new system of photographic practice which I have devised, solio paper is the standard in the taking of this standard tint, and the *solio time* of a light is the number of seconds required for the light to produce a just plainly perceptible tint on the solio, when compared with its original untinted color. This tint may be made through a small hole in the cover of a note-book. The book should be held in the position of the subject and turned toward the strongest light source.

The simple taking of the *solio time* annihilates the necessity of considering the following subjects (except to classify properly and find in the Steadman-Trager exposure table, a part of which will be given):

The condition of the atmosphere.

The time of day.

The season of the year.

The latitude from the equator.

The height of sun above the horizon.

I do not say, of course, that these things do not affect the actinic power of the light, but that the simple taking of the *solio time* measures in actual *time units,* or seconds, any intensity that may be produced by any possible complex combination of all the factors mentioned above; so that as elements of photographic exposure in actual practice, *they are all absolutely eliminated.*

As nature study, it is advisable to notice all the above elements, but in photographic practice we are dealing with chemicals, and the measure should be applied and the complications eliminated.

The latitude of emulsions is so great that it is simply useless complication ever to make an exposure that is not one of the following convenient scale, or some other further extension of it in one direction or the other:

Seconds—1-128, 1-64, 1-32, 1-16, 1-8, 1-4, 1-2, 1, 2, 4, 8, 16, 32, 1 (min.), 2, 4, 8 etc.

Whatever light the *brightest lighted or objective point* of the subject is in, hold the solio near that part of the subject and turn it toward that light, when taking the *solio time.*

First, *guess* what number in this scale will create the *just plainly* visible tint on the solio, and then give that much exposure to it. If the tint be rather plainly seen, then try again, giving one half of that time. Or, if the first *guessed* number of seconds do not make the tint appear, then let the cover down in the same place and give as much more, until, in either case, the standard tint is obtained. *The number of seconds required is the solio time of the intensity on that subject at that moment.*

This solio time is the exposure with the solio diaphragm of the subject.

The *solio diaphragm* is simply the diaphragm which, with any certain kind of subject, will give the correct effect in the emulsion when exposing the exact *solio time* of the intensity as measured.

If a certain kind of plate or film were very slow, then the solio diaphragm of any certain kind of subject would be one or two numbers larger than if the emulsion were faster; but as workers use the same emulsion throughout long periods of time, it is useless to complicate the matter with various speeds.

As I have used the Eastman film for the last eleven years, this method is based on that emulsion.

By experimentation, in which the exact *solio time* of the light was always given in making the exposures, I have ascertained the correct *solio diaphragm* for the different kinds of subjects, and the "bugbear of exposure" gives way to the following simple method:

Every light intensity has a *solio time,* measurable visibly, and expressible in seconds of time.

Every subject has a *solio diaphragm.* (Seen in the table.)

The former is the exposure with the latter.

The correct exposure with one diaphragm being fixed, to use any other diaphragm that exposure need only be doubled, or halved, for each number that the diaphragm is reduced or enlarged.

The *solio time* of the light as measured with the solio paper is the exposure with the *solio diaphragm,* found after the proper subject.

"SOLIO TIME" EXPOSURE TABLE.

(Steadman-Trager Method.)

Subject:	"Solio diaphragm."
Marines and snow views—	
Bird's-eye class ..... U. S.	128 (with ½ "solio time.")
With objects in middle distance.....	128
With objects in foreground.....	64
Ordinary landscapes—	
Bird's-eye class	128
White objects in middle distance.....	128
Average objects in middle distance.....	64
White objects in foreground.....	64
Average objects in foreground.....	32

These two subjects are sufficient to enable the CAMERA CRAFT readers to prove the system, and I would be pleased if those who will give the method a trial would report their success or failure to the *Editor.*

ONE OF THE CAMULOS CROSSES

BY A. C. VROMAN
Used by Permission

THE STORY of RAMONA
from a Photographic Standpoint
By George Wharton James

SECOND PAPER

Let us now visit Camulos, the avowed and accepted home of the heroine.

In 1886 Mr. Edward Roberts, one of the original publishers of Mrs. Jackson's novel, wrote an account of what he saw at Camulos. It has changed scarcely any since that time.

Here is what he said:

"What I sought is this which I have found,—the Camulos ranch, the home of Ramona, whom "H. H." created, and described as living with the Señora Moreno in this house from which I write tonight. Yes, here lived the heroine of the novel which many call the American novel, long watched for and now come at last. Here, before the cool, shaded veranda on which I sit, is the court-yard; here Felipe's room, and there Ramona's, and there the Señora's. I can see the kitchen, from which to the dining-room there was always a procession of children carrying smoking-hot dishes to the Señora's table. Where I am sitting old Juan Can used to lounge, with his legs stretched out before him, and his dog at his feet. Near by is the south veranda, the Señora's own, on which opened the room the good Father Salviederra used always to occupy; beyond that is the garden, 'always a mass of verdure,' in which is the chapel; in other directions are the olive, almond and orange-groves. It is all as Mrs. Jackson in her novel describes it. One recognizes at once the various places where this and that scene was enacted, and the characters of the story become living realities.

"The Camulos ranch comprises fourteen hundred acres of farm and fruit-land, and is about eighteen miles west of Newhall. The property was bought by the husband of the present owner, who is constantly reminding one of the Señora Moreno, and the house was built nearly thirty-one years ago. 'The house was of

adobe, low, with a wide veranda on the three sides of the inner court, and a still broader one across the entire front, which looked to the south. These verandas, especially those on the inner court, were supplementary rooms to the house. The greater part of the family life went on in them. * * * All the kitchen work, except the actual cooking, was done here, in front of the kitchen doors and windows. Babies slept, were washed, sat in the dirt, and played on the verandas. The women said their prayers, took their naps, and wove their lace there. The herdsmen and shepherds smoked there, lounged there, trained their dogs there; there the young made love and the old dozed.' And it is the same now. The court is open on the east, and that side is formed by a grove of orange-trees. In the center of the little square, set about with rose-bushes and a few trees, is a small fountain-basin; and past this the maids and children pass a score of times a day, on their way from

THE GARDEN AT CAMULOS

the dining-room, on the south side of the court, to the kitchen on the north. There being no hotel in this part of the valley, the Camulos is often filled with belated strangers, or visited by those desirous of seeing what an old-time Spanish ranch is like. The household is composed of nearly twenty people, related to the Señora. They are all acquainted with Ramona, and regret not being able to show one the original of that lovely character. 'Many who come here,' I am told, 'do not believe that we are not the ones Mrs. Jackson described. They ask for Ramona and Señora Moreno, and will not believe we are not the ones they wish to see. We remember when Mrs. Jackson came. She did not remain long; and our Señora, who, we are told, is so much like the Señora Moreno, was then away.'

"The verandas about the inner court are long and deep. 'The south veranda,' "H. H." says, 'was a delightsome place. It must have been eighty feet long at least,

for the doors of five large rooms opened on it. The two westernmost rooms had been added on, and made four steps higher than the others, which gave to that end of the veranda the look of a balcony or loggia. Here the Señora kept her flowers—fine geraniums, carnations and yellow-flowered musk. * * * Besides the geraniums, carnations and musk in the red jars, there were many sorts of climbing vines,—some coming from the ground, and twining around the pillars

A FRANCISCAN FATHER AT CAMULOS

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of the veranda; some growing in great bowls, swung by cords from the roof of the veranda, or set on shelves against the walls. Among these vines, singing from morning till night, hung the Señora's canaries and finches, half a dozen of each, all of different generations, raised by the Señora.' The south veranda is still popular. In the daytime one sits there to enjoy the prospect of the garden opposite, and during the evening the Señora visits it and has quiet conversations with her people, or with visiting friends.

"Coming suddenly upon the Camulos ranch-house one might naturally mistake it for some military stronghold. The walls are thick and low, and are strengthened by heavy buttresses, between which is a passageway to the cellar, and over which have grown honeysuckle-vines that climb even to the overhanging eaves of the house. It was on the south veranda, in sight of these strong, vine-clad buttresses and of the garden, that Felipe rested after his illness, while Alessandro watched by his side. The westernmost room, leading off the upper balcony or loggia, was the room

ONE OF THE CAMULOS VERANDAS

always given to Father Salviederra. Its window opens on the garden, and the doorway faces the east. 'Between the veranda and the river meadows * * * all was garden, orange-grove, and almond-orchard, the orange-grove always green, never without snowy bloom or golden fruit; the garden never without flowers, summer or winter; and the almond-orchard in early spring a fluttering canopy of pink and white petals. * * * On either hand stretched away other orchards —pear, peach, apricot, apple, pomegranate—and beyond these, vineyards. Nothing was to be seen but verdure or bloom or fruit, at whatever time of year you sat on the Señora's south veranda.'

"The garden nearest the south side of the house is to nearly all who visit the ranch the most delightful feature of the place. It is barely an acre in extent, but is filled with trees and shrubs that give forth a rich fragrance, and is inhabited by many birds. In the center of the garden is a large deep basin, into which fall the waters of a fountain. Around the rim of the basin are pots of flowers, and curiosities found in the adjacent fields. To the left of the fountain and extending down the east side of the garden is a long grape-arbor, overhung with vines. It leads to the brook that runs in the shade of some old, gnarled willow-trees, where the maids are made, in "Ramona," to do the washing of the Señora's luxurious household. It was there, too, at the foot of the arbor, that Alessandro first saw Ramona,

as she was busy washing the altar-cloth that Margarita had carelessly allowed to become torn. Beyond the brook is the Santa Clara River, and from the south bank of that shallow stream rises a group of hills, one being capped with a huge wooden cross, which "H. H." says the Señora Moreno caused to be set up, that it might serve as notice to all passers-by that they were on the land of a good Catholic. There is another of these crosses on the hill to the south of the ranch.

"To the west of the garden fountain is a little chapel, so often referred to in "Ramona." Standing in the shadow of the orange-trees that fill the garden, and overgrown with trailing vines that creep over the pointed roof and are festooned about the sides of the building, the chapel is a delightful place. A shaded gravel-walk leads through the garden to its entrance, and the interior contains a small white altar, on which are several choice ornaments and a statue of the patron saint of the household. The walls are hung with pictures of saints, some of them admirably painted. The present Señora is a devout church-woman, and holds regular service in her chapel. She reads the service herself as she kneels before the altar, and the responses are made by her children and maids. Whenever a Franciscan Father or a priest of the Catholic Church passes up the Santa Clara Valley, he is invited by the Señora to visit her house and say mass in the chapel. During such service the visitor is robed in richly wrought vestments, which are kept in a chest of drawers standing near the altar. In that same chest, too, is the cloth, with the rent in it still showing, supposed to be the very one that Ramona

THE BELLS AT CAMULOS

mended,—a fact illustrating the remarkable gift Mrs. Jackson had of observing every detail of places she visited, and, later, of using that information to embellish her works and render them realistic. She was at Camulos less than twenty-four hours, and yet her description of the ranch-house and of its surroundings in "Ramona" is wonderfully perfect. Taking "Ramona" in hand, one staying at Camulos can find almost every scene described. There are the corrals, where the band of Temecula Indians sheared the sheep; the barn from which Alessandro

took the saddle on the night of his and Ramona's departure from the ranch; the willows, near which the lovers were surprised by the Señora Moreno; and the thicket of wild mustard through which Father Salviederra was slowly making his way when Ramona came suddenly upon him. No detail of construction or location seems to have escaped notice.

"Near the chapel, at the northwest end of the garden, stands a tall frame of heavy beams, that supports a trio of bells. These bells came from Spain, and at one time were hung in the tower of one of the Franciscan Missions of California. The largest is cracked, but is still melodious. It is used to call the people to chapel. The one by its side is rung for the children to go to school; that above is the dinner-bell. The support is entwined with vines; and behind the bells, a short distance away, is a bright green olive-grove. Listening to the deep mellow tone of the large bell, and seeing the Señora, followed by her attendants, walking slowly through the garden to the chapel, one can easily imagine himself in some foreign country. It is all un-American and strange. The heavy white walls of the house, the perfume of orange-blossoms and roses, the organ chants and the faint sounds of prayers recited in Spanish, recall days in Spain where, as here, there was peace and quiet and an existence altogether romantic and poetical."

I was once at Camulos, at the time of the Flower Festival of Santa Barbara, in the month of April 1895. To attempt to describe the rich beauty of the Santa Clara Valley at this time of the year would be impossible to either a Ruskin, a Benjamin Taylor or a Canon Farrar, and the rich canvases of a Turner or a Vandyke could not do more than suggest the glories the eye constantly discerns. Well might Edward Roberts write:

"The Santa Clara Valley is a garden. By the roadside is field after field of grain. If I were an Easterner, and had never seen California, and should see it as I do now, robed in its bright spring dress, sweet to smell, beautiful to look upon, as warm and pleasant as June is in New England, I should ever after be a devoted admirer of the State, and could always be ready to believe and indorse all the pleasant things said in regard to it."

I did not go down to the house on the occasion of this visit, for I am well aware of the annoyance so much promiscuous calling of visitors causes to the honored residents. The rudeness of some of these visitors is as astonishing as their impudence is colossal. One feminine creature—so I am told—once walked directly into one of the bedrooms and exclaimed: "Oh! I'm sure this was Ramona's bedroom, and her very own bed," and, throwing herself upon it, she added, with a grunt of satisfaction: "There now, I can say I have laid down on Ramona's own bed."

In describing Camulos one must not forget the old olive-oil mill. Nothing could be more simple than this machine for crushing the olives and thus securing the rich, delicious oil. The rough basic rock, shaped into a roller, is affixed to an axle, one end of which revolves in the upright standard in the center of the mill base, which is kept firm and solid by the wooden frame. To the other end the horse is attached. As he slowly moves around the mill, the roller crushes the olives and the oil runs into a receptacle prepared for it. No better olive-oil is manufactured today than was (and still is) prepared in these old-fashioned mills.

One of the windows at Camulos is barred, and it requires but little stretch of the imagination to see there Ramona when she was confined by the stern and hard-hearted Señora after she had discovered the girl's love for Alessandro.

Official Notice No. 2 to the Photographic Fraternity

It having reached the ears of several members of the Executive Board of the Photographers' Association of America, that the report is going the rounds that there is to be no National Convention this year, owing to its being World's Fair year, and your Executive Board having planned for a convention that will far surpass any ever given, as the Secretary of said Board, I wish to deny emphatically such rumors.

Your Executive Board never knew such a word as fail; in fact we had to ask a back-number photographer how to spell the word, and to the end that our coming National Convention will so far surpass anything ever given, we have

THE FOREST PARK UNIVERSITY HOTEL

secured the Forest Park University Hotel (which is located within a stone's throw of the World's Fair grounds), to take care of our photographic friends, and in which to hold our meetings.

It is the intentions of the Board that only morning sessions be held and the afternoons to be given to seeing the Fair, and visiting the art-halls where we will have capable artists to deliver lectures on the many fine works of art therein. This alone will be a very instructive feature of the Convention, and every one will profit immensely by the instructions given.

The greatest National Convention ever held will convene in St. Louis during the first week in October, from the 3d to the 8th, inclusive.

This will be just before your holiday work begins, and you will have every opportunity to gain new ideas, and the Lord help the fellow that does not try to help himself.

It will be painful to you to have to admit to your artistic patrons that you did not see the works of art at the grandest exhibition of that nature ever held in this country, but by taking in the Fair you can also take in the greatest Convention and thereby kill the two proverbial birds.

Rates have been secured at the Forest Park University Hotel which will be much lower than any rate secured elsewhere, but this rate is for members of the Association only.

To secure these rates as well as to secure accommodations in advance for convention week, it will be necessary that you be furnished with a certified receipt from the treasurer, Frank R. Barrows, 1873 Dorchester Avenue, Boston, Massachusetts, showing that you are a member in good standing. Upon receipt of same you can write to J. J. Grafton, lessee and manager, care of Forest Park University Hotel, stating when you want to come, and that you are a member of the Photographers' Association of America; he will then set aside as many rooms as you will want for that week and the same will be at your disposal during the convention week. Under no other conditions will you be able to secure these accommodations.

Bear in mind that the Executive Board have promised you the grandest and best convention ever held, and to redeem that promise every member of said Board is working night and day to see that same is fulfilled.

Our official journal will be a thing of beauty and a joy forever, and woe to the one who fails to receive a copy of same. It will be yours for the asking, if you are in good standing.

There are many things that I would like to say to you this trip, but lack of time and space forbid. However, it is my intention to visit many of the State conventions this year, and I will tell you more when I meet you.

With very best regards, I beg to remain,

Cordially and fraternally yours,

GEO. G. HOLLOWAY,

Secretary, Photographers' Association of America.

Terre Haute, Indiana.

Many a print is spoiled by toning in too strong a light.

With snow on the ground, it is safest to "stop down" and take a quick snap, except when the shadows are deep. Then expose for the shadows and develop for the high lights.

Apply a little vaseline to the dull side of your ground glass and the image will show up much clearer.

It is best not to get too much into your pictures. They look crowded and no one particular thing is prominent enough to attract the eye. Art is based on simplicity.

It is impossible to hold the camera in your hand while making a time-exposure. To do it, is to get a picture that will make you dizzy to look at. Always use a tripod.

On Picture-Making With the Camera

By Henry Hall.

It is a well-known fact that the average amateur rarely, if ever, turns out a pictorial print.

Crisp negatives, full of detail in the shadows (and everywhere else, for that matter), and brilliant, snappy prints, are to be found in nearly every collection; but photographs disclosing some interesting phase of nature, human or otherwise, and, therefore, photographs of more than passing interest to any one except the maker and his friends, are seldom found outside the portfolios of a very small proportion of the vast army of old and young who have made the supplying of photographic materials one of the great industries of this, and every other civilized country.

Now, when one considers the mass of thoroughly good pictorial work constantly before the amateur in the numerous magazines, not to mention the art exhibitions, and the exceedingly good reproductions of the best work of the best painters,—when one considers all this, it seems, to say the least, surprising that the fact stated in the opening sentence should be possible.

And yet, one need not look far to find the cause of this comparative scarcity of really pictorial work among the amateur photographers.

If a bit of fine figure-work be shown, probably eight out of every ten amateurs will say, "My! what a fine model that fellow has! I could do something worth while, if I had such a model!" Or another will say, "What fine lens work! If I could afford a lens like that, I might be able to do something." Or show them a fairly good portrait by the average professional, and they say, "Of course! He's a professional!" as if that had anything to do with the case. Or again, if something more nearly approaching the painter's ideal be shown, perhaps the same eight or ten will say, "I don't care for that. It isn't sharp enough. I've plenty of spoiled plates at home that will make a better thing than that."

Here, then, are the two reasons why the average amateur seldom secures more than a mere transcript of what happens to be before his lens:

First, he doesn't seriously try to get more than a transcript. Second, if he, by accident, happened to get more, he might be more than apt to recognize the fact that he had also much less than a transcript, and throw away the plate before realizing the happy accident.

These, then, are the two reasons for the meager showing of the great majority of amateurs, and there is also a third reason, namely,—quite a number of amateurs do not care for "pictures"; do not try to make them, and would not, if they could.

This latter class, however, are not looking for information or advice along pictorial lines, and will, of course, look elsewhere for any possible or probable assistance in the making of more brilliant negatives, with still more microscopic detail than they have hitherto secured.

But it is probably true that the great majority of amateurs are really interested in "pictures," and would, if they could, make them with the camera. To these enthusiasts, every new statement of the problem is of interest; and to these we bring, possibly "coals to Newcastle," and possibly, here and there a stray suggestion that may make easier the path to success in pictorial photography.

First of all, let us assume that you wish to make with the camera, more or less accurate representations of the visible world around you, and that these shall be of such a character as will be pleasing, not only to you, but also to the world at large, because of their so-called pictorial excellence; in other words, that you wish to make something approaching as nearly as possible what the painter and the critic call a "picture."

If this be your desire, you must believe, first of all, that, in the making of pictorial photographs, it isn't necessary to tramp over miles of territory, nor to buy expensive outfits, nor to secure the most charming models that the country affords; but that, on the contrary, with the simplest apparatus, the simplest scenes and the most ordinary models, will, if competently handled, become subjects of interest, not only to yourself and friends, but also to every lover of pictorial work.

You must believe that it isn't the lens or the camera, the plate or developer, the model, or the view that some fortunate individual has discovered; but the man behind the camera, the man who handles the lens or the plate, the man who makes the model or the view his *own,* who is responsible for whatever of merit, or demerit, there may be in a pictorial photograph.

And this is what is meant by the watchword of the photographic salons,—"evidence of individual artistic feeling." This, then, is the key to the problem. *You* must make the picture, instead of leaving it entirely to camera and chemicals.

You must *see* the pictorial side of the commoner things of life, and having seen them, half the battle is won.

But how is one to learn to see these things, which we sometimes recognize so quickly when some keener student has put them before us on paper?

Chiefly, by a careful study of the best examples, which are numerous, and by reading, and re-reading the best books on the subjects, which are comparatively few.

You of course agree, that if you wish to learn plumbing, you would go to a plumber for instruction; or, if you wished to design a dwelling, you would sit at the feet of an architect until you had learned his methods, and his point of view. Then, if you wish to make pictures, why not go to the pictures, and the makers of pictures, as well as to the acknowledged critics of them, for instruction? The fact that you wish to make pictures with the camera, does not warrant your keeping exclusively to the photographic text-books, and the hard and fast methods of the commercial photographer.

If you study pictures (and you should study a hundred for every one that you try to make), you will quickly learn that the artist has given you only what he felt to be essential to his story, while he has left out the microscopic detail, and the thousand and one irritating and useless facts that are so surely inflicted upon the observer by a really good lens in the hands of a majority of the amateurs.

Therefore, study pictures. That is, study the work of the best painters, either in the original, or in the copies that may be had for a penny apiece and upward, at any of the art stores.

And, with the study of pictures, join the study of what literature you can find in relation to the rules of art, and the methods of the painters. There are not many books easily accessible, and you will save plates and paper, if you buy, and thoroughly study, all that you can find.

Among the books most useful to the amateur, are the following:

Burnet on Composition.

Composition, by Arthur W. Dow.

Pictorial Composition, by H. R. Poore, A. N. A.

How to Enjoy Pictures, by Mabel Emery.

None of these will cost more than $1.50, postpaid, and any of them will be supplied by CAMERA CRAFT, or by Tennant & Ward, 287 Fourth Avenue, New York.

Photo-Miniature No. 53, on "Pictorial Principles," is also full of valuable suggestions for the pictorially-inclined amateur, and is worthy of careful study. If you are interested in portraiture, you should have "Artistic Lighting," and "At Home Portraiture," by James Inglis and Dundas Todd.

If you will put aside your camera for a short time, and, in the interval, read and digest a few of these books, and with your reading study the work of the acknowl-

HARD SLEDDING BY HENRY HALL

edged masters, you will soon have a working knowledge of the simpler rules of art, and will know what simplicity means, and line, and mass, and balance, etc., and will know how much these have to do with pictorial effect. That is, you will learn how a picture is put together, just as you would learn how a house is designed if you were to study with an architect, or how a coat is made if you were to serve your time with a tailor.

And when, from study along these lines, you have begun to see what to put into your picture, and what to leave out, consider carefully, not only what lens, and plate, and paper will *not* do, but also what they can be *made* not to do, because your constant aim should be to leave out, rather than to put in. How to leave out the unimportant and disturbing details, you will learn largely by careful study of the image on the ground glass. A slight change in the position of the camera; a little to the right or a little to the left; a little nearer or farther away; a bit higher or lower; the raising or lowering of the front-board; tilting the camera with a

HOMELY BUT HANDY
by HENRY HALL

corresponding change of the swing-back, or a shift of the swing-back to right or left with the camera level; a change in the size of the stop; or a change in the time of day, will often completely alter the character of the image on the ground glass.

It is not, of course, suggested that all these changes are to be used all the time, nor that many of them are often necessary; but you should understand them all, and practice with them, until, after a while, you will unconsciously set up your camera in about the right position, and will so arrange stops, and front-board, and swing-back, that your first glance at the ground glass will show you that you are ready to give your attention to other details of the subject in hand.

This, the exposure, is but the beginning, and it may be a long road to the finished print, or it may be a comparatively short one; but all the way, you must keep in mind, what to suppress, or what to accentuate.

Development will have something, and a suitable printing process, a great deal, to do with success or failure in the finished print, but when you know what should be done or not done—what should be in your print, or out of it—you will gradually learn the means of accomplishment. And it is certain that these means will not lie in the direction of finer lenses or more perfect equipment. Nor will they consist in tramping over miles of territory in your vicinity, nor in trips to the seashore or the mountains, in vain search of something that will make a picture.

First, get in mind the elemental idea of what constitutes a picture,—that is, the body, or framework, without which no picture can be thoroughly pleasing,—and then, in trying to fill this body with life and sentiment, come back to yourself, and your own dooryard. If you can't make pictures there, you can't make them anywhere. Try that winding path, with the trees and shrubbery for a setting, or set up a dark background at the end of that north veranda, and experiment on the members of your family, possibly with some of your four-footed friends that may be about, and if they get tired, call on your neighbors for models. (They are always willing, at the start.) Or try indoors, not too close to a window, looking always for the lighting which can be made right, if your eye be but trained to *know* the lighting when you get it.

Keep your eye out for interesting phases of human nature. Study poses and lighting on the street and in the cars, as you travel about. Try always for the simplest things, and try to show them as they are. Keep in mind the fact that the greatest paintings have nearly always been of the simplest possible kind; oftentimes, only a bust portrait of some honest old burgher, who never dreamed that a hundred years after the earth had covered him, he would still be smiling down upon the people of other times and lands.

And finally, lest this article should be misunderstood, it is not claimed that, having become familiar with the simpler rules of composition, your success in pictorial photography is assured. On the contrary, you will have but laid the foundation for that success, and your progress will then depend on your ability to look at things from the pictorial standpoint; that is, to recognize pictorial things when you see them. See them you must, because they are on every hand, and by looking for them wherever you may happen to be, your ability to recognize them will grow apace. Furthermore, you will have the added pleasure of enjoying, as you go through the world, many a pleasing incident of life and landscape that formerly would have passed by unnoticed.

A CHILD STUDY
by DALE J. NOLAND

Portraiture

By Dale J. Noland

I stepped into the gallery the other day of a man, who claimed to be a maker of portraits. By the way this is one of my traits, to examine the work of other people and get all the new ideas I can. Well, I sauntered in to look at his portraits. How many do you think I found? Of course the opinions of people differ about what a portrait should be, but judging from my own convictions on this subject, I should say that it was impossible to call more than half of the work in the show-cases portraits; the other half were merely pictures. A portrait must be a likeness while a picture may or may not be. A photographer takes a picture of some nice country scene and if the work is half what it should be, he calls it a landscape; it undoubtedly is. He takes the picture of a man or woman and calls the result a portrait; probably it is and probably it is not. That all depends. This word, portrait, is not enough understood and we are not doing the word justice when we give that name to mere excuses of pictures.

The fault lies either with the photographer or with his sitter. Some people demand from a photographer work that is not artistic, when he could give them better. Somehow it takes that kind of work to suit them. On the other hand, photographers sometimes give their customers poor pictures, when they would take better, if they could get it. Such men undoubtedly missed their calling. I actually know a photographer who uses the same chair, the same background and the same lighting for every sitter—yes, and even has all of them looking in the same direction. You can imagine the result. That is his fault and not the fault of his customers. I know another photographer. He understands posing, but purposely under-exposes and over-develops most of his negatives. By so doing and by giving a broad lighting, he gets shadowless faces, faces that are as white as it is possible for paper to be. This gives no chance to show character or personality in the picture, nevertheless his customers are well pleased by having such beautiful, white complexions. This is the customers' fault. I know that this photographer can produce excellent work, but he is in business for the money there is in it and if he can get it by flattering the people, he is going to do it. While I myself like to make all the money I can out of the art, still I would not lower the standard of photography to do it, as this fellow certainly does. If a photographer puts out nothing but high-class work, he will gain the confidence and patronage of the better class of customers, consequently he can demand a higher price and make more than he did when he catered to the demands of the other class.

There are four essentials in every portrait—light, shade, expression and pose. When one of these components is lacking the portrait fails to fulfil its purpose; it fails to produce a true likeness. It also fails to fulfil its purpose when one or more of these essentials are carried to the extreme. In one of our photographic magazines I noticed, what was called a portrait of Mrs. ———. In this picture, light and shade had been carried to the extreme and pose and expression had been almost obliterated by this contingency. This certainly was not a portrait. For about two months there was a question in the correspondence department, asking the editor if he did not think the picture looked more like a man smoking than a woman. The answer was, "Yes." This picture was made by a man who was

ILLUSTRATING THE FOUR ESSENTIALS: LIGHT, SHADE, EXPRESSION AND POSE

supposed to know how, yet if it had been a true likeness such an opinion as that would never have been formed.

Of all modes in which contrast can be presented to the eye, none are so potent as light and shade. Wherever there is sight the divisions of light and dark unfailingly and instantly impress themselves. In making a picture, the expressiveness of a face depends in a very large measure upon the disposition of the lights, half-tones and shadows. Whatever expedient of lighting is adopted, it should never (as it easily can) falsify character or personality—without which a picture would be an unfaithful likeness. A picture with a preponderance of light naturally conveys a cheerful impression, while gloom or pensiveness is readily suggested by an excess of darkness. These facts, although not invariable, are generally true. To analyze the work of great artists in regard to light and shade is, I believe, the quickest and most satisfactory way of becoming proficient in this branch of the work.

There is nothing to be avoided more than meaningless, artificial smiles. Some people, women especially, seem unable or at least unwilling to trust their faces, without a smile on them, but how much more dignified a woman is, with a look of composure or serenity. As soon as you can make them feel at home in your gallery, you will find that fewer of your pictures give the impression that you had leveled a revolver at the face of your sitter just before making the exposure. All it takes to make them feel at home is a little knowledge of human nature.

With regard to pose, that which is most natural will always be most successful. Anything approaching self-consciousness is to be avoided if possible. Always find the best side of a person's face and take that side. Never photograph a man with his face directed toward the camera; it makes his ears look like a monkey's ears. Try a picture partly profile and see how much better the result is. Women may be photographed looking in any direction, their hair tends to hide their ears and the picture is more pleasing.

Many considerations will enter into one's studies in portraiture which we cannot deal with here. It is sufficient to say that we cannot be too careful or fastidious in regard to every part of the picture. No detail of a picture, however beautiful or interesting, can stand by itself, but must be a part of the whole. Our detail must be of the subject, not merely in it, and never a mere episode in a collection of episodes. In other words, we must have a singleness of purpose and express it.

With regard to the taking of the photograph at just the right and inevitable moment no suggestion can of course be made. It is this more than anything else that is to make or mar the picture. It is this that will either vitalize that picture or will stamp it with the depressing dullness of a commercial photograph. The more diligent the study of one's subject, the more insight one can get into it, and the more direct and simple the treatment the greater the success will be, and only in such a spirit may truthful and interesting portraits be obtained. Remember, the more truthful and the more original, the nearer it will come, not only to a representation, but to an interpretation of one's subject.

It is not a bad scheme to have a triangle level attached to your camera. There are too many pictures showing water running up hill, a yacht coasting, buildings falling over, etc.

TO THE RESCUE

BY O. LUSSIER

Print Albums or Print Scrap-Books

In looking over a season's prints, no little of the pleasure is derived from calling up the memories connected with each picture, and the circumstances under which the negatives were secured. In this way many a spare hour can be pleasantly passed, not only by enjoying the real pictures, the prints that give us a little more than a mere record and charm by their pictorial qualities, but also the so-called records pure and simple, secured mainly from memoranda, all will bring back incidents that would otherwise have been entirely forgotten. For this reason alone, if for no other, an album is very useful, and while a portfolio has some advantages, the album, after being properly bound, keeps the prints compact and together, and one is not tempted every now and then to take out one's best prints for exchange, to send to some competition, never to see them again, or to present as souvenirs to admiring friends.

Prints, of course, should lie perfectly flat, and this can easily be accomplished by pasting the corners only, very slightly, just enough to make them stick well; the moment prints or mounts are wrinkled the beauty of the picture, as well as the album, is gone. Albums nowadays can be obtained in endless variety, and no trouble whatever to select something suitable from the dealer's stock, and prices also are within the reach of any one, from the most inexpensive makes up to the more elaborate and ornamental ones. Besides, any one with enough ingenuity to produce photographs can also arrange an album according to his own notions, containing any variety of tints to match his prints, and of any desired size, by simply making use of the mounting papers and fastening the backs by clips, cord or ribbon, or, if something still better be desired, the finished album can be taken to the binders for the putting on of a cover.

We have found the album system especially convenient for the arrangement of such prints as are taken while on a trip, and the photographic enthusiast will always manage, in some way, to add a camera to his baggage. We would suggest to arrange prints obtained on such trips in rotation as they are taken, and adding such memoranda as may be of interest on the margins or the mounts, if the color of these will permit it. Should the mounts, however, be too dark in tint to take writing, loose leaves of light color can be placed between, or bound in the rear. In making more extended trips we have often fallen back on railway time-tables and advertising booklets, clipping maps and any information of interest, and such matter in connection with what photographs we may secure, will make valuable data for reference at any time.

The covers may bear the title of each album, and here again any amount of ingenuity and taste can be displayed from plain writing in pencil or pen, to the most elaborate design, according to one's ability and the amount of time one wishes to devote to it. In this way we will obtain a very interesting collection of volumes in the course of time and in addition to the work having one's personal imprint, the cost will be very trifling.

For extended trips we are in favor of the hand-camera, the more compact the better, and some of the excellent makes lately put on the market are really marvels of perfection and answer almost every purpose.

While on a trip, especially when short of plates or films, we usually try to reserve our exposures for the unexpected, as it were, such as animated groups, children at play, street or wharf scenes, in fact for any scene which may compose well and which might be turned into a picture, and here also the small hand-camera which is always ready, has all the advantage over the more bulky apparatus which has to be set up at the risk of seeing one's picture vanish before one has had time to unpack and set up one's camera. Buildings, scenery, etc., if only desired as records, can be bought almost anywhere as cheap or cheaper than one could turn them out with his own camera, and they are generally better than what could be secured hurriedly, being done by professionals who have taken pains to get the very best in order to make the pictures sell, yet every now and then we happen to come across a landscape or street scene under a peculiar effect of light, and if it makes up a real picture, such scenes had best be secured at once, the chance may never occur again.

The Metropolitan Camera Club of New York, 102-104 West One Hundred and First Street, begs to announce the First American Photographic Salon to be held in New York City in December, 1904, and for which entries will be solicited from the great masters of pictorial photography in every part of the world.

The most distinguished citizens and art lovers of America have formally expressed their sympathy with the movement, and have consented to act as patrons of the Salon. Among them are the Honorable John Hay, secretary of state, United States of America; the Honorable B. B. Odell, Jr., governor of New York; the Honorable Thomas C. Platt; the Honorable Chauncey M. Depew, and the Honorable George B. McClellan, mayor of New York city, and one hundred collectors of paintings and lovers of art of world-wide fame. We have the honor to announce that the Jury of Selection will consist of seven of the foremost painters of America, including Frederick W. Kost, Alphonse Jongers, and William A. Coffin, and the fact that this is the first time in the history of pictorial photography, either here or abroad, that a jury of such eminence has passed upon photographic pictures.

Pictorial workers of the highest standing will see in this an unexampled opportunity to have their work passed upon by judges of such eminence that they may be considered as a court of final resort.

Foreign entries may be sent unframed. If accepted by the Jury they will be framed in the best manner at the expense of the Metropolitan Camera Club of New York. Directions for framing will be carefully followed out by a committee of high standing.

The exhibition will be fully insured, and the most careful attention will be given to all entries and to all communications. The hearty support of all lovers of pictorial photography is earnestly solicited, as the work, as planned, is of such magnitude that all of our energies and resources will be taxed to the utmost.

We beg to accept with thanks, the flattering offer of support and assistance from the Salon Club of America.

The Metropolitan Club of New York,
Curtis Bell, President.
Sylvester C. Bullenkamp, Secretary.

By H. J. S. Anderton

Probably nearly every amateur has at some time tried his hand at moonlight effects. The old idea of sticking a wafer on the back of the negative to represent the moon is effective when there are no branches of trees or other obstacles to be overcome, but the results are hardly convincing when the moon is made to appear as if stuck on the trees. The following is a simple and efficient method of surmounting this difficulty.

The first step is, of course, the taking of the negative from which the moonlight picture is to be printed, and a little advice upon this part of the process may be acceptable.

Fig. 1

In the first place, the picture must be taken against the sun which must, of course, be shining if the moon is included in the finished photogram. Give a very brief exposure, so as to avoid much shadow detail and also to accentuate contrasts. Go as near to including the sun in the picture as possible without fogging the

Flg. 2

negative. This is necessary in order that the moon may be placed as near the original source of light as practicable, thus avoiding false lighting.

It is important to select a suitable view. Many bits of scenery unsuited to day work may be made into charming little moonlight studies. Fig. 1 is a typical view taken about noon with the sun shining over the trees on the left.

All the necessary apparatus are a printing-frame, a piece of glass of the same size as the negative, and a box of the small paper disks used for spotting lantern slides.

The piece of clear glass is first placed in the frame and the negative laid film upward on it. The frame is now held up to the light, and the correct position for the moon having been carefully considered and decided upon, one of the spots is stuck on the back of the plain glass.

The negative having been removed, the piece of paper upon which the print is to be made is placed in the frame with its film side in contact with the glass. A graduated tint printed upon it, the moon, of course (represented by the paper spot), remaining white.

The method of doing this consists in covering the frame with a large card and drawing this slowly downward so as to expose the paper gradually.

When the card is down to the level of the horizon of our finished print or thereabouts, it is *swiftly* returned to its former position, and again *slowly* drawn down; the movement being repeated until the desired depth is obtained. The result of this operation is shown in Fig. 2.

The glass with the spot upon it is now taken from the frame and laid aside. The negative is placed in the frame and the sheet of paper with the graduated sky and moon is laid upon it and the whole set to print. In this way, the trees which cross the moon will impress themselves upon it. The finished result is shown in Fig. 3.

So much for P. O. P.; but undoubtedly the best results are on rough bromid paper, slightly toned. With the latter, the procedure is much the same, the only difficulty being the printing of the sky, and this difficulty is only a seeming one, however.

Fig. 3

The arrangement of the moon on the piece of glass is carried out exactly as described above. In the dark-room the bromid paper is placed film down upon the glass and the frame covered with the big card. Now turn up the light and go through the movements of sliding the card up and down as before. The length of this exposure will depend on the depth of sky required. As a rough

guide, say go through the movements three or four times, the whole occupying about half the exposure required for the negative, and the operations being conducted at twice the distance from the light.

Before removing the paper from the frame, mark the position of the moon on the back with a lead pencil, so as to avoid placing the paper upside down on the negative. Substitute the negative for the glass and expose again.

Amidol is a suitable developer, and, with "Barnet" rough bromid paper, is easy to use and gives me very good results. The strength of the developer has a great influence on the finished result. For those soft, mysterious effects we must use a dilute solution and expose generously. For bright, clear moonlight with well-defined shadows and strong high lights, a strong developer and a shorter exposure will be required.

The uranium-iron toning for bromid paper, given in "Facts, Figures and Formulæ," gives an ideal toning with a few seconds' immersion. This bath is very rapid in action, and the progress of toning must be carefully watched.

Winter Scenes

Valuable winter scenes are not as plentiful as summer scenes, but by reason of their being scarce they are the more valuable. A winter's day in the woods has many a revelation to the photographer. With an old stump, half covered with snow, for a foreground, a brook in the middleground, with mayhap a rail fence running along one side, a gentle declivity with trees on the other, and here and there the water foaming through the half-frozen surface, the amateur is sure of something that will give him many moments of pleasure. To use the expression of one writer:

"There is the path up the hillside leading to a log cabin just peeping above the white banks in the distance, and sending forth from its broad chimney a graceful curl of smoke, while the towering pines spread their shadows softly across the great snowfields. There is the creek which has danced and sung all the summer-time around the boulders and over pebbly banks, flirting with tufts of grass, reeds and drooping bushes, but now caught by Winter and tied up so tightly that it fairly cracks to move a joint. Here and there appear broken masses of translucent ice, while just beyond its waters are changed by Winter's magic wand into sparkling jewels, or are spread in smooth transparent surfaces where the sky above glasses her face. A scow is half bleached; the reeds and bushes are crested with snow, while in the near distance a mountain lifts its dark form as a background."

And these beautiful winter scenes are ofttimes to be found within gun-shot of your home. Cultivate winter photography. The discomfort of the cold is nothing to the satisfaction of having something worth preserving.

If photography did not lie, our building inspector would have his hands full condemning buildings photographed in the act of caving in or leaning toward the middle of the street. A more liberal use of the swing-back or the rising and falling front would prevent such disasters.

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A Notable Event in the Business World

Mr. W. P. Perry who has conducted the local branch of the Eastman Kodak Company so ably and with such credit to himself since its establishment a few years ago, will shortly return to Rochester to assume other and more important duties. Mr. Perry, coming as he did, an entire stranger, has succeeded in winning not only the respect and confidence, but the good will and friendship of the entire business world with which he came in contact. That he will be missed as an important element as well as a personality most admirable, is felt by all who have known him. Mr. H. A. Cudding, who will assume charge here, has visited the coast several times and is known to many of the men identified with the photographic trade on the coast. This acquaintanceship so favorably inaugurated insures him a measure of popularity of which he may be proud. He is assured the welcome to which his sterling good qualities entitle him.

The California Camera Club and the St. Louis Exposition

As usual, the California Camera Club will distinguish itself as it has so uniformly succeeded in doing when opportunity has presented in the past. The San Francisco building at the St. Louis Exposition will set aside a room of no small dimensions to be devoted exclusively to the exhibit of the California Camera Club. It is only the undeniable ability of the Club to achieve fully and most creditably any undertaking which it may entertain, that has made the securing of so flattering a concession possible. That they will demonstrate their worthiness goes without saying. That few if any like organizations will enjoy similar distinction is doubtful. The Club will visit the Exposition in a special train and may well feel proud of their achievements as a body of camera enthusiasts.

The Bausch & Lomb Souvenir

As a fine piece of publishing throughout; in printing, binding and process-work, this souvenir is epoch making in its excellence. It is only the mammoth edition demanded by the universal publicity of the contest which it so fittingly commemorates, that makes its production possible. Illustrating as it does the best possibilities of the camera as demonstrated in the best work of today, it is invaluable to the student of our art science, be he either novice or past master. Our thanks are due the enterprising publishers for placing such excellent value before us.

Bon Voyage

Dr. H. D'Arcy Power who has been so prominently identified with CAMERA CRAFT since its birth, who has helped so materially to elevate it to the proud rank which it now holds and who has earned for himself such an enviable reputation for well directed and thorough experimenting and investigation in various lines of photographic work, will leave, May first, for an extended trip through England, Germany and France. While the trip is taken primarily to afford the Professor much needed rest, his active habits of mind and deep interest in photography will combine to insure the thorough investigation of everything new, or of possible interest to our readers. Factories will be visited, processes investigated and authorities consulted. Dr. Power will continue his department in this magazine as heretofore and contribute special articles from time to time.

The California College of Photography

I am pleased to find that we at last have an institution of the class that proposes to instruct in photography through the medium of the mails, here in our own favored State. Under the able and efficient management of its president, Mr. A. S. Dudley, the California College of Photography can not fail to achieve the success and fame that ability and enthusiasm will surely compel.

The Dealer's Duty to Himself

If there be a better method of stimulating business, of increasing sales, of multiplying possible customers, of preventing the loss of those already secured and otherwise assuring one's self of a trade that is constantly improving in its value, than by the active forcing of photographic literature, I am afraid it has not yet been discovered. The connection is so plain and the inference so palpably conclusive that no argument is required. There is a dealer in a New Jersey town who has so stimulated trade in his locality that the popularity of amateur photography in his city has called down upon the heads of the residents thereof, comic skits in the New York papers. To quote from a recent sample of this kind of enviable publicity: "Travelers passing through the town at night imagine the place is suffering from fire beyond the control of the Department, but it is only the residents indulging their taste for photography through the medium of the flash." The principal dealer in that town has for years ordered a certain number of copies of every photographic magazine published. This number is well in excess of the estimated sale so that copies are always obtainable. None of the unsold ones are returned. Each one remaining unsold at the end of the month is handed to some appreciative novice and the result of six-months' practice of this method has made that dealer an enthusiastic believer in the virtue of his methods. How different is the spirit displayed by the average dealer. He complains that the small profit and trouble and expense of returning unsold copies does not warrant him in carrying them. That he is deceiving himself, robbing himself and curtailing his possible profits by his short-sighted policy, is evident. A moment's reasoning should convince him that his duty to himself demands a different set of tactics.

ESKIMO DANCING BOY
Copyrighted by B. B. DOBBS

A Photographic Digest

By H. D'Arcy Power, M. D.

Development by Daylight

This subject has received much attention in Europe, of late, and various commercial methods, for example, the coxin, are in use; in all these the principle is either to stain the plate or the developer with a dye capable of protecting it from the influence of the actinic rays during the process of development. Among the most successful of such is the method of MM. Lumiere and Seyewetz, who, after lengthy experimentation, obtained the best results from the use of magnesium picrate; this they combine with anhydrous sodium sulphite in the proportion of two of the latter to one of the former, which is marketed under the name of chrysosulphite No. 1, and a second mixture known as No. 2, containing 15 per cent of the picrate in a hundred of the sulphite. The first of these is used with pyro; the second with glycin diamido phenol and other developers of their type. The method of using as applied to a pyro developer is thus given in the *Photographische Mittheilungen*: A developer is made consisting of pyro, 20 grams; chrysosulphite No. 1, 100 grams; water, 500 grams. Take of this 50 c. cm., 150 c. cm. of water and 10 c. cm. of acetone, and use sufficient that the plate be covered at least a c. cm. in depth. The plate must be immersed in the dark, but the development can be carried on in full light. The writers state that where artificial lights are used the plate is safe at half a meter from a candle light, and one meter from a kerosene lamp, and a meter and a half from a sixteen-candle incandescent light. The above receipt is chosen to give a fully developed negative in five minutes. After two minutes it is safe to remove the developer two or three times for examination by transmitted light without danger of fogging. The exposure for this purpose must not be for more than two or three seconds, and the distance from the source of light must be double that just mentioned. If, however, a piece of yellow glass be held behind the plate the distance may be greatly shortened.

The following formula is given for the development of bromid papers:

Diamid phenol	10 grams
Chrysosulphite No. 2	30 grams
Bromid solution	2 c. cm.
Water	1000 c. c.

Another dyeing method has been published by A. Funger in the *Photographische Chronik* and is as follows:

Solution 1—

Hydrochinon	8 grams
Metol	4 grams
Sulphite of soda	70 grams
10 per cent solution of phenolphtalein in alcohol	20 c. cm.
Water	1000 c. cm.

Solution No. 2—

Potash	100 grams
Pulverized rosolic acid.	1 gram
Water	1000 c. cm.

For development, use equal parts of these solutions and fix in an acid bath.

Disappearance of the Latent Photographic Image

That long postponment of development after exposure of plate or film results in a deteriorated image, has long been known and the effect has been particularly noted in the case of films and is one of the charges against them. The whole subject was recently dealt with by Dr. Leo Baekeland in a paper before the International Congress for Applied Chemistry at Berlin. Those interested should read the text published in *British Journal of Photography* No. 2285, which, after giving experiments and reasoning, arrives at the following conclusions:

Photo-retrogression, or slow disappearance of the latent photographic image, takes place in glass plates, films, and paper, coated with gelatin silver bromid or gelatin silver chlorid. Photo-retrogression is especially apparent in under-timed images, and much less noticeable in over-timed images. Photo-retrogression may, under special conditions,

become apparent in dry plates, films, or paper forty-eight hours after exposure, and may increase until the latent image has nearly disappeared. Photo-retrogression occurs quicker at high than at low temperature. Photo-retrogression occurs quicker in a humid than in a dry atmosphere. Photo-retrogression is less apparent in neutral or slightly alkaline sensitive layers than in such ones which have an acid reaction.

The last statement accounts for the greater instability of films as these receive a large addition of chrome alum.—*British Journal of Photography.*

Upon Changing Photographic Plates From the Developer to the Fixing Bath Without Recourse to the Dark-Room

[A paper read before the Section of Photography and Microscopy of the Franklin Institute.]

(1) Let a photographic plate, which has been exposed in a camera, be developed in the dark-room in the usual way.

(2) After development place the plate under a tap of running water until the developer is thoroughly washed off.

(3) Open up the dark-room to daylight and place the plate in the fixing bath.

Fixation, without fog, will be complete in about ten or fifteen minutes, according to the strength of the bath used.

I was led to the above experiment by the fact that dealers are using developing machines in the dark-room to develop films because of the increased ease and speed by which films can be handled with the machine. Instead of putting the fixing bath into the machine, they withdraw the film after washing, place it in a tray containing a fixing bath prepared for a great number of films, and immediately proceed to develop a new film.

It at once occurred to me that it would be very important to devise a method of development by which the amateur, who has no dark-room, might be enabled to attain the speed of the dealer who has a dark-room.

The following experiments, (a), (b), (c), led up to (d), previously mentioned.

(a) Submit an exposed plate to the action of the developer, and, after washing aff dark-room, and the result will be a negative free from fog.

(b) Plunge an exposed plate, without development, into the fixing bath in daylight. After fixation the plate will be clear.

(c) Submit an exposed plate to the action of the developer in the dark-room, and in daylight, before washing, plunge it into the fixing bath. The plate will be fogged.

(d) Submit an exposed plate to the action oi the developer, and, after washing off the developer in the dark-room, plunge the plate into the fixing bath in daylight. The negative will be found free from fog.

The developing machine is admirably adapted for just such an experiment. An exposed cartridge can be placed in it in daylight; can be developed in daylight; can be washed in daylight; and in daylight the carrier, black paper, and film can be unrolled, the film torn off from the paper and immersed in the fixing bath, prepared for a number of films, in another dish. In such an experiment I have found the negative to be free from fog. Thorough washing after development, and before exposure to the light, is the *sine quâ non.* To obtain thorough washing after development, place the machine under a tap of running water, rotate the film, and frequently pour off the water until it runs clear.* Washing should be complete in about two minutes, and the machine be ready for the immediate development of another film.

Thus a method is pointed out by which the amateur, without a dark-room, may attain the speed of the dealer with a dark-room.

A. W. M'Curdy.

* The above method of fixing in daylight has been followed by myself for the last three years and is recognized as sound by the recent code of instructions issued by the Kodak Company.

Portraiture Against the Light

In *La Photographie* of December, M. J. Garezynski writes on the above subject with illustrations that demonstrate the excellence of his method. Speaking of the difficulties attendant on this mode of working he points out that the greatest, namely, halation, may be overcome by making the exposures from half an hour to an hour before sunset, when the atmosphere is charged with yellow light. He advises that the window or open door where the portrait is taken should have a southern or eastern orientation and that orthochromatic plates without a screen be employed. He advises that the objective be

placed obliquely to the window and that heavy and somber window drapings be avoided; and that where transparent curtains are used, that the designs thereon be large in character.

The subject can be taken full or three-quarter face, but never entirely in profile; and, furthermore, means should be adopted to obtain a secondary reflection on the shadow side. In one of the pictures illustrating the article this is obtained by posing the figure at an open French window which is behind the subject, and whose white curtain acts as a reflector. The exposure should be long enough to obtain shadow detail, and development should be carried far enough to give them force; any blocking of the high lights that may ensue can be removed with persulphate of ammonia reducer.

Actinic Value of the Light of the Sky

At the November 25th meeting of the British Astronomical Association, Mr. G. J. Burns presented a note on the above subject, and he finds that the actinic value of the light that comes to us from the sky by night close to the zenith is greater than that of moonlight when the moon is on the meridian, or sunlight when the sun has an altitude of thirty-six degrees. It is also greater than the average value of the light of the blue sky by day.

The Control of Gradation in Bromid Prints

A most valuable paper on this subject was recently communicated by Mr. J. Sterry to *Photography*. The following excerpts will enable the reader to apply the method described:

When taking up bromid printing it is not long before we find that there is practically little or no control in the working of it. To obtain the best results, if the negatives include a full range of illumination they must have been developed exactly to suit the particular paper in use, or another paper must be chosen to suit the negative. Variation in the time of exposure or in the time of development does have some effect, but it is comparatively small and certainly unsatisfactory. Questions are often asked in photographic papers upon this point, and various suggestions have been given, such as printing through colored glass, longer or shorter duration of the exposure, etc., but these all fail to give anything like what one could call real and efficient control. This important fact has all along been fully recognized by *Photography*.

Latterly, slower and slower papers and lantern plates have been introduced, so that now both may be worked by gaslight or even by weak daylight. These are found also to give deeper blacks, but necessitate the use of very thin negatives—that is to say, negatives that have had a correct exposure, of course, but have been but so slightly developed that they are useless for almost any other process, though perhaps still suited to enlarging upon a rapid bromid paper, the negative acting under these altered circumstances, as is well known, as though it were denser or more fully developed.

What is really wanted is some process by which a negative, which has been developed specially to suit, say, the carbon process (which requires the greatest development of any), shall still give as good a result upon a bromid paper which normally requires the thinnest of negatives. Every other case, of course, will be met, if this extreme one can be coped with successfully.

The method described does this. It is capable of giving any variation desired—from the strongest black and white to the most delicate softness—and, speaking generally, without making any change whatever in the exposure. The proper time for exposure is first found by trial, the object being to obtain in the usual way just the faintest detail in the highest lights, using the developer so as to bring this out within a reasonable time. By this is meant that the paper should practically have full development. This is the only way to obtain the same result continuously, and then no damage will be done should the print remain in the developer for a little longer time than is absolutely necessary.

After a consideration of the principles involved the author states that all that is necessary to convert a soot and whitewash print into one of good gradation is to soak it between exposure and development in a solution of potassium bichromate—one part in one thousand—for two minutes, to pass it through a dish of water to take off the bichromate solution on the surface, to pour on the developer, and to continue the development until the desired result was obtained in the shadows. Still softer results were readily obtained by using the bichromate stronger—say one in a hundred.

With the Process Workers

By Will Sparks

Handy Set of Weights

In mixing solutions a great deal of time can be saved if the operator will make a set of weights and keep them where he can find them. They will also prevent mistakes and save calculating. As a general thing the photo-engraver uses the ordinary grains, drams, pennyweights, etc., and each time work is done there is calculating and chance of error. When a set of weights is made the work is done for "once and all." For instance you are going to mix collodion. Go to the composing-room and get a few leads and slugs; then get out your weight for whatever you want. If you are using 52 grains of cadmium iodid, put your weights in the scale and balance them with a piece of the lead. By clipping off the lead with a pair of scissors and finally rubbing on a file, it can be balanced to half a grain. Mark this "cadmium iodid," then get out a piece for each of the other ingredients and mark them plainly by scratching into the metal. After this there is no more calculating. It is only necessary to put your piece of lead in the scale and pour out enough chemical to balance it. The result is sure and saves lots of time. Keep your different sets of weights in different boxes and mark them, "collodion," "iron developer," "enamel," etc.

Effects of Reduction

When a half-tone negative is examined under a strong magnifying-glass it presents a very rough, fuzzy appearance. When it is examined under a microscope it looks like a sprinkling of sand and the wonder is that such bright, clear results can be produced from it. Several effects enter into this. Halation, or solarization, in the bichromate print has a good deal to do with it. But the processes of reduction and intensification have more than that. The accompanying cuts give a good idea of what reduction will accomplish. The plates are magnified about 200 diameters from the original half-tone negative. It will be seen from these that the reducer first attacks the weak spots and leaves the strong, thereby producing contrast.

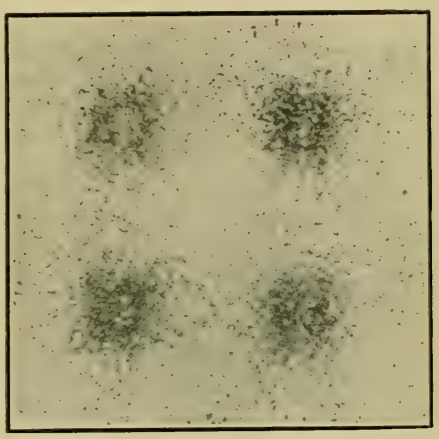

Fig. 1

Figure 1 is from a photomicrograph of the "dots" as they appeared after development. The silver deposit is scattered all through the plate.

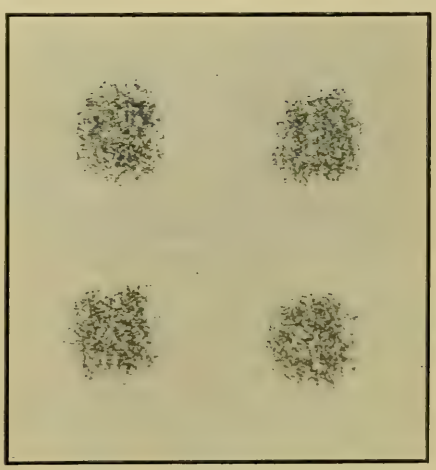

Fig. 2

Figure 2 shows how the silver granules have been absorbed leaving the clear spaces that print as lines. The specks of light in the "dots" are overcome in the print by solarization.

Half-Tone Screens

It is now nearly twenty years since the making of half-tones became a business and the manufactured screen an article of commerce. To the present perfection of the screen as we use it the greatest credit is due to Max Levy, F. E. Ives, and O. Meissenbach. Here we have men of three of the greatest nations in the world—America, England and Germany—as solvers of a problem that led to one of the most important of industries.

Just who sold the first screen as an article of commerce I don't know. But the Meissenbach screen was for sale in 1887, and to import one would bring up the cost to about twenty times what the cost would be today for the same thing. About that period half-tones began to appear in the magazines. They were so satisfactory and came just in time to make the publishing of photographs possible, hence their success was assured. The wood-engraver was doomed.

Today the Levy screen leads the world. In America Mr. Levy has only one competitor but in Europe, particularly England, several makers turn out screens which are satisfactory to some operators.

There are dozens of men today who handle screens to perfection and yet have very little idea of how or why the screen works, to say nothing of knowing how it is made, or of the struggle the makers went through to bring it to perfection.

The idea of using a screen of some kind to break the light and shade of the copy picture into lines and dots is almost as old as photography. Who really invented the screen on a glass plate is not known although I have been told that Meissenbach once made this claim when he got out his first patent. But all that is of no matter now. The thing to consider and understand is the screen as we have it.

In the first place let us look at the half-tone screen. As has been stated, the Levy screen, made in Philadelphia, is the standard article almost universally used. Max Levy is a man of great inventiveness and resourcefulness, besides having infinite patience and determination, and these gifts have carried him through the enormous mechanical difficulties incidental to the delicate operation of ruling these screens. He has designed and constructed his own machines, grinds his own diamond points, polishes his glass by novel machinery, and now expresses his intention—probably half carried out by this time—of making his own glass, owing to the difficulty of getting it in the market free from bubbles and other imperfections. The glass at present used is a beautiful white crystal patent plate, imported from France, about one-eighth inch thick, which is thinned down to about three-thirty seconds inch thickness in the necessary grinding and polishing. So far as we know of Levy's method, from the description he has allowed to be published, the routine of manufacture is as follows:

The glass is coated with an etching ground which is resistive of hydrofluoric acid, and is at the same time capable of being cut through in lines by a diamond ruling point, ground to a U shape. The glass is fixed to the bed of the machine, and the diamond point is fixed in an arm which traverses it, very much like the ram of a shaping-machine. The plate is ruled at an angle of forty-five degrees to its sides, and an ingenious feature of the ruling mechanism is that the arm carrying the tool automatically adjusts its stroke to the length of line it has to cut, starting with a stroke of about two inches, and increasing the length of every stroke until it reaches the central diagonal line, after which it gradually diminishes to two inches at the opposite corner. The time as well as the length of stroke is altered, as uniform ruling requires uniform speed. The machine is started and runs on automatically day and night until the plate is finished. It would be fatal to the evenness of the ruling to stop the machine.

I do not know the time required for ruling a plate, but the cycle of operations necessary for the stroke and return of the point and the spacing for the next line must necessarily be slow on a machine of this character, especially as the diamond point must be drawn very slowly over the glass plate. If we take the largest plate Mr. Levy can rule, viz: forty-eight inches square, which would give a diagonal of about sixty-eight inches, the interesting calculation can be made that a screen of one hundred lines per inch would require about sixty-six hours for each of the two plates required to form the cross-line result. When the ruling is finished, the lines are etched with acid, the resist is polished away, and the furrows formed by the etching are filled with a black made up, something like a printing ink, from the finest possible vinecarbon. The two single

line screens are then sealed together with the finest Canada balsam and while under pressure dried at a strong heat.

The largest effective screen that Levy has produced is 42x32 inches, and one is in use in the ordinance office, England. It is carefully kept under lock and key and is valued at $1.250.

Some time ago Levy experienced great difficulty with his black filling, all the blacks he could get having an oily constituent which was dissolved out by the balsam used for sealing, and rendered the transparent spaces of the screen somewhat yellow. This led him to abandon the carbon filling, and use a dark-red substance, but it was so strongly objected to by the process operators, who had become accustomed to the black lines, and imagined that their troubles in the making of the negative were due to the new filling that he yielded to prejudice and abandoned it.

The finest screen ruled at the present time is four hundred lines to the inch, and strange to say it prints as well as much coarser ones but is generally used for mechanical photogravure.

For the past ten years of experimenting, screens of all kinds have been tried but the cross line so far has held its own. Checkerboard screens have been made quite effectively, but had only the advantage of extra transparency and lacked much of the gradation of the cross line. Some operators still use them and claim superiority. Deville says they are much superior for all kinds of work and insists that in order to produce with a cross-line screen as good a result as the chess-board screen, the adjustments of the screen, plate, and diaphragm would have to be three times more accurate and the screen itself three times more perfect. The same authority strongly recommends vignetted screens, which he defines as a screen that is "semi-opaque over its whole surface, and divided into minute zones of varying degrees of opacity." At present the vignetted screen belongs in the laboratory but may soon come into the shop, as it certainly promises a great deal.

Another form of screen that promised a great deal is the four-line screen. It consists of two pieces of glass each with a cross-line screen upon it, one at the forty degree angle and the other at right angles. Some operators still use this and the claim is made that it produces more contrast and more detail in the shadows.

Let us now consider briefly the matter of irregular-grain screens such as are now becoming popular. The very earliest experimenters in process work down to the very latest have believed that the ideal breaking-up method would be one of irregular grain, yet the productions resulting form carrying out this idea have not so demonstrated its superiority, except for certain classes of work eminently suited for such screens, viz: for broad effects in painting, drawing, and photography. When it comes to rendering fine detail and delicate light and shade with crispness and clearness, the irregular-grain screen is quite out of it in competition with the cross-line screen.

Mr. Sanger Shepherd was one of the earliest on the market with irregular-grained screens, and his plates were apparently all that could be desired in this way. But the results from the screens were not popular. Whether it was that the half-tone men did not handle the screens rightly, or that the printer made a mess of the blocks, I do not know, but the fact remains that Mr. Sanger Shepherd finds color-photography a more profitable line to pursue. The late E. Gaillard, of Berlin, also produced some good grain screens, and the Haas irregular-grain screen is another well-known make. So far all these screens consisted of opaque grain, produced apparently in a very similar manner to laying the asphaltum dust ground on a photogravure plate, and the grain was practically the same as is got on a photogravure plate.

There is another form of grain screen now coming into vogue that promises much. It is called the "Metzograph" screen and was invented by James Wheeler of Bushey, England.

The previously mentioned irregular-grained screens have probably from a quarter to half their area opaque, but the Metzograph screen has no opacity whatever. It looks like a piece of clear glass, but when examined more closely it will be found to have an embossed grain on one side. This is produced in a peculiar way. Mr. Wheeler is a maker of a pharmaceutical product known as pyro-betulin, which is obtained from birch bark, and when sublimed it is found to deposit itself on a glass plate in a reticulated grain of any desired fineness. This grain being of an acid-resisting nature, the spaces between can be etched by means of hydrofluoric acid, so that a permanently embossed

granulation is imparted to the glass. When a screen prepared in this way is placed in front and close to the sensitive plate, each of the grain points acts as a tiny lens or prism, deflecting or transmitting the light so as to produce alternate light and dark places. This action can be readily understood by noting the effect of light and shade in the embossed glass used in doors and windows.

I must now turn to the question of diaphragms for the half-tone process. I think it must be pretty well known to all here that the half-tone workers use square and other shapes of diaphragm apertures other than round ones. A round diaphragm can be used, but is not so effective for forming the screen dot. To understand why that is so, we must fully grasp the fundamental principle of half-tone work, viz: that every aperature of the screens acts as a pinhole lens, and photographs the brightly illuminated diaphragm aperture. Consequently whatever the shape of the diaphragm aperture, that will be the shape of the dot images on the sensitive plate. Thus a round aperture gives a round dot, and a square aperture a square one. Now let us see which will give the best result. Take three distinct kinds of dots:

1. Dots which have overlapped each other in the high lights and formed transparent openings.

2. Dots which are isolated, but varying in size in the middle tones.

3. Fine isolated dots in the shadows.

Of course, the print will be the reverse of this, and will give:

1. Small isolated dots in the high lights.

2. Fairly large white dots in the middle tones.

3. Small white dots in the shadows, becoming invisibly small or covered in altogether in the deepest shadows.

The desire is to get all these kinds of dots on the same negative. Get them all and the work is perfect.

Screen Distance

There is little doubt but that the principal factor in securing a good half-tone negative is the correct screen distance. Following are a few rules that will be found reliable:

1. The screen ruling. The coarser the ruling the farther away from the plate the screen must be.

2. The actual focus of the lens, as shown by the camera extension. The greater the distance from lens to plate the greater screen distance.

3. The size of stop. The smaller the stop the greater the screen distance.

These are mathematical and must be so. But the operator has two other elements to consider and they are what make one man better than another. These are the nature of the original copy and the kind of chemicals used. After a thorough understanding of the above table the rest is judgment, based on experience.

Cutting Solution

As a general thing photo-engravers mix their "cutting" solution by guess work. As there is a great deal of margin in this work the scheme works "pretty good." But a great many failures are undoubtedly due to this cause. Like every other part of the photo-engraving process the best results are sure to follow the most exact methods. To be sure of what you are doing you must be as careful with the cutting solution as you are with your developer. Prepare and work it according to the following formula, and at the end of a month, if you note carefully your results, you will not go back to the old way:

Water	1 ounce
Iodid potassium	40 grains
Iodin crystals	15 grains

This makes a stock solution:

Water	10 ounces
Cyanid potassium	1 ounce

will make another stock solution. Now, to mix the "cutting" solution, take say one-fourth ounce of the iodin stock solution and dilute it with water until it looks like the dark lager-beer of commerce, pour into this slowly some of the cyanid solution until the diluted iodin solution is just transparent and this gives you the cutting solution. If it works too fast to suit you dilute it with water. If you require a solution to "cut" the negative film faster, add first a few drops of the iodin stock solution until the "cutting" mixture shows a trace of yellowness then add only enough of the cyanid to clear it again. In "cutting" a negative the rule is to make haste slowly.

The Amateur and His Troubles

By Fayette J. Clute

To Prevent Enlarging of Stripped Films

One of our subscribers has been experimenting with every formula he could find for stripping films from their glass support. He has decided upon one or two that he believes the most practical. The trouble is that these particular methods are just the ones that seem to allow the most enlargement of the film; with one process the enlargement is over one fifth the original area.

All this is easily prevented. Simply give the negative a coat or two of five per cent collodion and allow to dry before stripping operations are commenced. The handling of the delicate film will be made much easier, and more force if necessary can be employed in its removal from the glass. No enlargement will take place.

Coating for Wooden Trays

"A subscriber" asks for a coating for wooden trays to be used for photographic purposes. The following has been recommended to me: Mix equal parts of guttapercha and paraffin over a slow fire and apply while hot by warming the tray, pouring some of the mixture inside and allowing it to flow from side to side. A hot iron passed over the surface will give a polished surface much resembling that in rubber articles after vulcanizing. The coating is absolutely waterproof, and will resist the ordinary acids and alkalis used by the photographer.

Transferring Prints to Wood, Metal, Etc.

An amateur out in the west end of town has been decorating all sorts of things with his prints. He made a negative of a pair of canvasback ducks a few weeks ago and prints from this negative are perhaps the most available, or rather, with them he secures the most pleasing results. A piece of wood is well polished where the print is to be placed and a coat of copal varnish given the surface. Before this is entirely dry, the print which has previously been given a bath of weak formalin to harden the film, is placed face downward in the desired position and well rubbed into contact. Allowing the varnish to become thoroughly dry the print is well wet with water, and gentle rubbing entirely removes the paper leaving the film containing the picture firmly attached to the wood. Another coat of varnish completes the process. The same plan is followed in transferring prints to glass, stone, metal and the like. Solio paper is what he uses for making the prints. The results are most pleasing and photographs so transferred ought to prove very effective in combination with the now so popular burnt work.

Dodging a Negative

I have tried a good many different ways of improving the printing qualities of poor negatives and I have heard of a good many more but I ran across a, to me, new way of doing the trick recently. This worker I had the pleasure of meeting has several little methods of his own but his treatment of a poor printing negative seems to be the most practicable. He first goes all over the film with a little powdered cuttlefish to secure a good surface or tooth. He then rubs up a red crayon pencil on a piece of ground glass securing an impalpable red powder which is applied where wanted with a small chamois-skin stump. A paper stump is used to remove any color that may get beyond the desired outline. It is evident that such control must be quite satisfactory as there is little danger of the work showing in the finished print.

Developing Double-Coated Plates

Double-coated nonhalation plates, particularly if over-exposed, require special treatment to secure the best results. With the ordinary method of developing, such exposures are almost certain to result in a fogging of the entire surface of the first

or faster film, making the resultant negative not only a slow printer but a very unsatisfactory one for some printing processes. At the same time, an exposure of from three to five times the normal for the upper or faster film will give the best results if the right method be employed in developing. Development should be started with a well-diluted developer to which has been added a generous supply of bromid. Knowing that a full exposure has been given, every effort should be made to secure density in the lower or density-giving film while bringing forward as little detail as possible. Once the desired density is secured it is a very easy matter to turn the attention to this upper or detail-giving film and by the use of a stronger solution secure what detail is required. It is well to remember that the increased thickness of the film due to the double coating of the plates is inclined to mislead one as to the amount of density secured. One or two trials will enable one to judge fairly correct. One should also bear in mind that more extended fixing is required and that the washing should be prolonged. Negatives made on these double-coated plates, particularly of interiors, if rightly handled in development, are well worth the extra cost and trouble.

A Simple Experiment

An amateur came to me recently with a negative he had been spotting and on which he had made a rather mussy job. He had been using his color in too liquid a form. The first thing to do was to remove his work which was done by soaking the negative in a tray of clear water and occasionally passing a tuft of cotton over the surface. By the time his spotting was all removed the film was thoroughly softened. Noticing that the negative was on the weak side and also wishing to save time I blotted off all surface water by placing it between the folds of a towel and then held it pretty close to the gas-jet to dry; in fact, so close that it became pretty warm. My friend protested that I would melt the film; he had tried the same thing with disastrous results. The film did not melt. The truth of the matter is, that a negative once dried and again softened in water will stand during the second drying an enormous amount of heat. What is also interesting is the fact that a negative so treated improves in contrast much as does one subjected to the regular methods of intensification. This is not so much due to the second wetting as to the drying of the negative so rapidly. Try the experiment with a waster by thoroughly wetting one end only and then drying it rapidly. A print from the entire negative will tell the story. I believe a repetition of the treatment will still further improve a flat negative. The same rule holds good with the original drying of our negatives.

Thiosinimine as a Fixing Agent

A correspondent writes to ask why this agent that was so favorably mentioned a few years ago as a likely rival to our old friend hypo, failed to come into more general use. Was the cost too high? The cost of the article had little to do with its failure to become generally useful. Unlike hypo its solvent powers were found to vary greatly with the various forms of silver salts. It had little or no effect upon silver iodid; about one fifth that of hypo upon silver bromid, while its action upon unaltered silver chlorid was as active as that of hypo. As the emulsion of many of our commercial dry plates contains iodid of silver, its use, even allowing for the five times necessary to remove the bromid of silver, would be out of the question. Its use would be practically limited to the fixation of purely chlorid plates or papers.

A Hypo Eliminator

I have a memorandum in my note-book, that like many others, has been there for some time. It is the result of having a friend who receives and reads one of the French photographic journals, ask me concerning an article which one of the issues contains. It claims that a fixed negative plunged into a weak solution of permanganate of potash, one but slightly colored, and renew the bath as the color is lost, and complete elimination of the hypo will have resulted when the bath ceases to lose its color. I wish some of my readers with a little more time than I have at present would give the matter a trial and report. It is quite certain the prolonged bathing or too strong a solution will stain the negative but a weak acid bath should remove the stain. I would like to have a print from a negative so stained and one after the stain has been removed.

Notes and Comment

No place in the world is as thickly populated with amateurs as is California and the surrounding states; this section is simply teeming with them; but how many can do justice to the wonderful works of nature about them, and are disappointed in their work after much effort, no doubt.

Time is valuable; material is valuable; and the amateur soon comes to the realization that he has expended too much time and too much money for the benefit or pleasure that he expected to derive from the art.

Nothing is as valuable to any person as a complete course of instruction in any department of work that he expects to undertake, this is especially true of the amateur photographer. With his eye he perceives all the intricate beauties of nature, but on account of lack of knowledge fails to reproduce the effect in the picture.

The California College of Photography of Palo Alto, California, has been established for the special purpose of aiding all who desire help and knowledge along this line. The leading feature is the exhaustive manner in which it treats of the branches of both professional and amateur photography.

Realizing that the masses of the amateurs cannot be instructed at the College, Mr. Dudley, the president, has instituted a correspondence course, thus the amateur can remain at home, pursue his or her line of work, studying during spare moments. The course takes up first the fundamental principles and carries the student along step by step mastering each part as he proceeds until a thorough knowledge of the subject is gained.

All work, including negatives, prints, etc., is submitted to their capable instructors for criticism. After receiving the instruction papers and submitting their work for correction, each student is graded according to the merits of his work, and when he has proved himself to have a sufficient knowledge of the subject is awarded a diploma. The course is complete in every respect and it will pay any one to investigate.

They have just issued a beautifully illustrated catalog, which should be in the hands of every amateur, who can procure same on application.

Read their advertisement on another page of this issue.

We beg to advise the trade that we purchased at public auction on March 9, 1903, the entire thirty-five years' accumulation of designs, photographs, and negatives of the late Lafayette W. Seavey, background artist, at the late Mr. Seavey's studio in Walton avenue and Cheever place, New York City. We are therefore equipped by right to supply the trade with any "Seavey" backgrounds which you may have samples of—or we will supply sample photos of same, upon application, from the negatives purchased by us.

PACKARD BROTHERS.

"How to Make Photographs in Fifteen Different Colors" is the title of a booklet giving concise instructions in carbon printing, that we have received from G. Gennert, 24 East Thirteenth street, New York. This is a new edition, but we followed the old one very carefully some years ago, when making our first essays in this fascinating process, an experience that brought a great deal of pleasure. Incidentally, it may be mentioned that this firm supplies all the essentials needed by a beginner for the reasonable sum of $5. This includes chemicals, tissues, dishes and tools, and that amount of fun will be easily got out of it. The outfit is made to "nest" so that it takes up very little space.

The California Camera Club enjoyed a "snow outing" to the Sierras, at Truckee and Donner Lake on Saturday, February 20th. The trip offered unlimited opportunities for fine snow pictures, and CAMERA CRAFT hopes to reproduce a few of these photographs in the April number of the magazine.

The United States in the Orient

The most notable magazine feature recently announced is Harold Bolce's discussion, in the March *Booklovers Magazine* of "America's Opportunity in the East." The article—the first of a series dealing with the outlook for our nation in Korea, China and the entire Orient—is characterized by breadth of view, keen observation, and a treatment at once sane and picturesque. The admirable illustrations and helpful comparisons of routes, distances, relative areas, and populations are supplemented by maps in full color.

Mr. Bolce, who has stepped aside from an important governmental position at Washington to become a special staff representative of *The Booklovers Magazine,* is now on the field of action in the Far East. His credentials from high officials, at home and abroad, have given him access to inner circles in Oriental life and diplomacy, so that he is certain to furnish throughout this series increasingly interesting matter. This first article bases its conclusions upon interviews with statesmen and leaders of commerce, not only along the Atlantic Coast before his departure, but especially on the Pacific Coast, caught on his way to Japan and Korea. He crystallizes the wide diversity of opinions regarding the outcome of the conflict between Russia and Japan: On the one hand the widespread, anti-Russian sentiment—a conviction that Russia's triumph would inevitably mean the closing of doors in Manchuria, and possibly in the whole Eastern world, against American commerce; on the other hand the strong pro-Russian sentiment asserting that Russia is now an enlightened country, manifesting a modern spirit of progress—notably in her vast railway construction—and, having shown herself always our friend, planning more and more to encourage reciprocal trade. In line with this, as Mr. Bolce shows, there are not a few who mistrust Japan, strenuously insisting that Japan has a distinct scheme for solidifying the Mongolian race, an ambition to merge and mobilize the millions of China into a military entity, whose power, once aroused, would dwarf into insignificance any horde of conquerors the world has ever seen; and that, therefore, "a Japanese victory over Russia would be an international calamity," an insurmountable calamity to the free commerce of the nations. Both of these divergent views Mr. Bolce presents quite clearly.

Diverse as these opinions are, all, however, agree in one thing: That "the United States is at the present moment confronted by the greatest opportunity and the greatest problem in her history"—in brief, that this is a crucial hour for the republic if our westward course of commercial empire is still to take its way. Up to this time, as Mr. Bolce reminds us in a quick survey, America's march to the Western sea has been unparalleled—the nearest approach to it in recent days being Russia's march to the Eastern sea. The latest facts of marvelous development of Western states which Mr. Bolce gives—his pictures of upspringing Western cities, with their fine streets, notable buildings, miles of wharves, and imposing merchant fleets; his accounts of individual successes, and his showing that there is room and a loud call for two million more of our young men of the right stamina on the two Pacific coasts—all these emphasize the necessity for broad statesmanship at Washington and alert action on the part of our leaders in commerce. Surely this is an epoch-making article.

All in all the March *Booklovers Magazine* is a remarkable achievement, and marks a distinct advance in modern magazine making.

Fogged Negatives

C. B. M., Denver, Colorado, writes that he is troubled with fog on his negative. He says that all his chemicals are pure and clean and his apparatus in perfect order. The fog appears to be on the surface of the negative.

Answer: From all indications your silver bath is too warm. You have cold weather in Denver and perhaps you keep the darkroom too hot. See that the stove is not too near the silver bath. I once found a case where the stove outside heated the silver bath through the partition of the darkroom. If this is not the case test your developer carefully. Perhaps your hydrometer is out of order and your iron solution is too strong.

Mr. Gene Carbrey, who has been prominently identified with the Gundlach-Manhattan Optical Company for the past nine years, has severed his connection with that concern and is now associated with the Rochester Optical Company, makers of the celebrated Premo line.

A MOORISH NOBLEMAN
By J. T. KEILEY

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

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Newspaper Photography

By ARTHUR INKERSLEY

Until a few years ago the illustrated weekly papers were adorned chiefly with woodcuts, mostly of a very crude sort, while illustrations were almost unknown in the daily papers. In times of war, maps of the country in which military operations were being conducted, and plans of beleaguered fortresses or cities appeared in the daily press, but they were of a rough character, and, while they conveyed information, could hardly be said to gratify the person of taste. The old processes of engraving on steel, copper, wood or stone were so slow and laborious that it was not possible to employ them successfully to illustrate events from day to day. One of the early methods of newspaper illustration used metal plates thinly coated with a white plaster, through which the artist cut lines with a graver. The plate was put into a bath of etching acid and a matrix was produced into which molten type-metal was poured. The resulting cut was used on the press. The limitations of this process were serious and no delicate results could be achieved by it.

The invention of the art of photo-engraving on zinc or copper worked a revolution in the illustration of monthly and weekly periodicals, the rapidity and comparative cheapness of the process rendering it possible for newspapers to give in each issue reproductions of photographs made the day before. Of course the reproductions that appear in the daily papers are not works of art at their best, while at their worst they are meaningless blurs, without form and void of traceable resemblance to anything on sea or land. But this is due not to the fact that the original photographs from which they were made were bad, but to the cheap, poor quality of the paper on which the journal is printed and to the rapid presswork necessary to turn out thousands of impressions in an hour. In order to make photographic reproductions that shall be pleasing to the eye and shall do even moderate justice to the original picture it is necessary to employ a high-surfaced paper of good quality and weight, and to run the impressions off slowly and carefully.

The journalistic photographer, working under great difficulties, often produces excellent pictures, though this would scarcely be suspected from the blurred, hazy, indistinct reproductions seen in the pages of many of the daily papers. That excellent pictures are often made by journalistic photographers in the course of their regular work can be seen from the illustrations of this article, all of which are from photographs made for use in the daily press.

The photograph intended for newspaper use should contain only one or two objects, and should have strong contrasts of light and shade. Like everything else in a newspaper, which lives but for a day, the pictures must relate to an immediately

interesting event or person, and must catch the attention of the hasty and careless reader. The habit of reading blanket journals, with glaring headlines and numerous pictures, produces a state of mind prepared to receive only the obvious and insistent. Nothing delicate or possessing in the slightest degree the quality of elusiveness can be communicated through the medium of a newspaper. The "screen" through which half-tone engravings are made is so coarse that all atmosphere and fine detail are lost.

Hence the photograph intended for use in a newspaper must have the object large in the field. The news or other editor who selects a photograph cuts off ruthlessly everything but the main figure, often reducing a splendid 8x10 print to a 4x5 by slicing off foreground, sky and sides. In order to make a single figure fill up a whole plate, the journalistic photographer is compelled to get almost on top of his subject. A New York photographer, who made a picture of W. K. Vanderbilt, Jr., immediately after he had covered a mile in 39 seconds in an automobile, "climbed on to the

DUKE OF YORK AND PARTY COMING DOWN TIMBER SLIDE AT OTTAWA

bonnet of the car and took aim at him with a huge instrument only a few feet from his face." The result was a picture eminently satisfactory to an editor, but displeasing to an artist from the distortion due to too great nearness to the object. The steering-wheel, being nearer than the man's face to the lens, looks as big as the wheel of a four-horse wagon. Similarly, if a man be photographed on horseback "head on," the desire to get a large image of the man causes the horse's head to appear of mammoth proportions, while his hind quarters taper away into insignificance. The eye which judges the pictures offered for use in a daily paper is seldom that of a man possessed of artistic taste or education. The most superb pictures by the greatest masters of the photographic art would be rejected, almost contemptuously, by the average news-editor or Sunday supplement concocter.

The photographer, then, who is ambitious to do work of a journalistic sort must keep his mind closely fixed on the limitations of the daily paper and of the men who are responsible for its contents. He must produce not the picture that pleases his own taste or that would win commendation at an exhibition, but the

OIL-CARRYING STEAMER "PROGRESSO" DESTROYED BY EXPLOSION AT FULTON IRON WORKS, SAN FRANCISCO

OVERTURNED LOCOMOTIVE ON MOUNT TAMALPIAS RAILROAD

COURTESY OF SAN FRANCISCO CALL

picture that will appeal to the eye of the man who decides its acceptance or rejection. He must produce a sharp print on glossy paper, with the principal figure covering nearly the whole of the space. If the subject is a man or woman, the picture must show the face clearly, even though the person be engaged at the time in an occupation which makes it difficult to get a full view of the face, as, for instance, rowing in a boat or driving a golf-ball from a tee.

The picture must have a news value; that is, it must be of an event of immediate interest. The winning yacht should be shown crossing the finishing-line, with the man who steered her at the tiller. The lawyer, who has just cheated the gallows of its prey, should be pictured walking up the steps of the City Hall, or, if possible, delivering his impassioned address to a hypnotized jury. The

ARARAT ARAB PATROL, OF KANSAS CITY, IN UNION SQUARE, SAN FRANCISCO

more rooted and sincere the objection of a man to "having his picture in the papers," the more valuable, if he is a public character at all, does his picture become. It is a matter of pride for the enterprising journal to secure the portrait of a man who tries in every way to evade its pertinacity. If a revolting murder is committed, photographs of the house where it was done, showing the window at which the murderer entered and of the back door by which he escaped are valuable. If the murderer should be so thoughtless as to leave the imprint of a dirty paw on a newly painted door or window-frame, that charming memento must be photographed on such a scale that every line may be seen. Photographs of this sort gratify the mania that newspapers have for doing the work of detectives and please such of their readers as are possessed of the same morbid instinct. They prove their maker to be gifted with the genuine journalistic nose.

Though large newspapers keep staff photographers of their own, they are not able to cover all events of interest and there is left an opening for the skilful, energetic amateur who will work with an appreciation of the necessities and requirements of the newspaper and of the conditions under which it is produced. In order to get a clearer idea of what is wanted, he should cultivate the acquaintance of a reporter and should accompany him to street processions, public receptions, automobile, yacht and rowing-races and other events. Thus he will be enabled to get to the spots most favorable for picture-making and be permitted to push his camera forward into places that would be barred from him ordinarily.

Interesting events occur now and then even in small and unimportant places, and the resident amateur should endeavor to get as good a pictorial record of these

BARNEY OLDFIELD IN BULLET NO. 3

as he can. Though he will probably not be able to get prints out in time for use in the dailies, he may be able to dispose of them to a weekly or even a monthly. If a man of public importance lives in or near his town, he may make pictures of him, his house, his garden, his wife and children, his favorite dog or horse. These may be utilized when the public man becomes a candidate for high office or in any other way attracts general attention. In such cases it is almost necessary for the photographer, if he be not also a writer possessed of a considerable acquaintance with the peculiarities of the periodical press, to get a suitable article written by a journalistic or literary friend, as the photographs are hardly likely to prove salable unless accompanied by a good manuscript. As the editors of *The Photogram* say in a booklet entitled "Photography for the Press"—"pictures accompanied by text stand a much better chance of acceptance than pictures alone,

except in the case of current events, of which the editor has reports from other sources. * * * In more important work the text is generally the first consideration, and usually the photographer would need to seek for some one with a view to collaborating."

Some of the photographs reproduced in the press are views of buildings or places in which the public happens to be interested and call for no special apparatus. But many of the newspaperman's pictures are of moving objects. Especially is this the case in the sporting department, the editor of which is constantly crying

SCENE FROM LA FIESTA FLORAL PARADE, LOS ANGELES, CALIFORNIA

for pictures showing action. In nearly all athletic sports there are instants of extremely rapid movement and of momentary rest. A golfer at the end or the top of his swing may be photographed without using a lens and shutter of abnormal speed. But during the swing up or down the golf-club is moving very rapidly and will produce a blur unless the lens and shutter work at high speed. Men actively engaged in lacrosse, cricket, football or any sport are difficult subjects for the photographer. Inasmuch as the print submitted to the editor loses in the process of reproduction, it must be very sharp to begin with. It need not be larger than 4x5, though the size generally used by newspaper photographers is 5x7. The

art departments of well-equipped newspapers have enlarging cameras, so that a print of any desired size may be obtained from a small negative. The small camera has several advantages over the large one. It is easier and cheaper to operate; the supply of loaded plate-holders weighs less, and (more important still) it does not create so much alarm in the subjects, who are apt to take fright when a camera as big as a trunk is directed at them.

In making pictures of figures in action, the fact should not be overlooked that many of the positions of a man running or a horse trotting, for example, do not appear natural or graceful to the eye. The aim, therefore, should be to avoid making the picture at an instant when the performer is violently and, as it seems to the person looking at the picture, unnaturally contorted. Though the main function of the photographic art is to record facts, there is no reason why the

HERE THE GRIMSEL PIERCES THE JUTTING ROCK PHOTO BY WENDELL G. CORTHELL

selection of the facts should not be made with common sense and some artistic appreciation.

To sum up: A photograph, to be acceptable to a newspaper, must have a figure as large as can possibly be crowded into it, very sharp definition, strong contrast, a good deal of action and a close reference to a matter of immediate interest. If the original negative be small, a good bromid enlargement is salable, for this can be drawn upon or painted over readily. The title and a few words describing the print should be written lightly with a soft pencil on the back of the print. The name and address of the photographer should be lightly but clearly imprinted with a rubber stamp. If this be done, the print will explain itself, even though it get separated from the other prints and from the letter accompanying them, as is by no means unlikely to happen in the confusion of a newspaper office. Few things are more annoying to an editor than to find a good print without a word to indicate what it represents or where it came from. Everything that is essential to explain the picture should be written at the back of it.

A WINTER MORNING
by RUDOLF EICKEMEYER, Jr.

The Recent Exhibition of the Photo-Secession Society

By Sidney Allan

A photographic critic can not choose but despond. His isolation is complete and tragic. From the exhibitors he criticizes it were unreasonable to expect sympathy. The public recognizes photography only as a frivolous pastime. And the professionals as well as the average run of amateurs regard him as a wet blanket. They "know what they like," and therefore look askance at the man whose function it is to convince them that they do not know what they ought to like. For he seems to them serious in the wrong place.

I shudder as I think that it was really I who introduced photographic criticism, that it was I who first treated photographic pictorialists as artistic individualities and criticized an exhibition of prints in very much the same way as I would an exhibition of paints. It is a very ungrateful occupation. One can suit nobody. One reader complains that my pen elucidations are too objective. Another that they are entirely too subjective. A third that I should carry my principles of "impressionist" criticism to their logical conclusion, I ought to head each article with the menu of the dinner I have eaten before writing. In vain have I labored to convince these assailants that all criticism, rightly considered, is simply the intellectual pastime of one man, who likes to see his opinions in print; that they should not get irritated about them, and should read them in the same complacent state of mind as when they peruse the impressions of some foreign traveler. They will not be persuaded and their gibes—shall I confess it—have left me a little shame-faced, a little despondent. But as it is a self-inflicted task I really have no right to complain, the more as I can never resist the temptation of seizing my pen to the same purpose as soon as an opportunity affords itself.

SIDNEY ALLAN

And such an opportunity was the Exhibition of the Photo-Secession at Pittsburg, which opened February 6th. What a chance for the critic. At last he has found an enthusiastic clan of camera-workers, who are perpetually asking for ideas on their work, for recognition of photography as a serious art.

The average merit of this exhibition was a very high one. It may be safely described as the finest and most interesting exhibition of pictorial photographers ever held in this country, and while few—scarcely more than fifteen or twenty—single examples impress me as very much in advance of their fellows, it is more because of the higher average excellence as compared with previous exhibitions than the absence of distinguished merit. The qualification of a picture's admission

to this exhibition seems to have been, first of all, that *it give evidence of personal artistic intention,* in view of which only a secondary importance could be attached to mere execution, and to the exemplification of appliances and processes, which are generally regarded as the standard of technical excellence.

The Exhibition consisted of three hundred pictures by fifty-four individual workers, and although it professed to be representative of American pictorial photography, it was really nothing but a Photo-Secession show, or, more favorably expressed, a résumé of Eastern workers. The extreme West was only represented by Annie W. Brigman, Harry C. Rubincam, and Myra A. Wiggins.

The strongest group, fourteen prints, was furnished by Alfred Stieglitz, who as we may read in the catalogue, has lately promoted himself to the rank of director. Half of his exhibits were old acquaintances, the other seven gave evidence that he is still at work as hard as ever. His "Hand of Man" is the masterpiece of the Exhibition. It is exceedingly well composed and carries out the idea he wished to convey. The effect of mystery, which is to me the principal charm of the picture, is attained without artificial means, which is great praise in these days of faking. Only the rails were darkened in the negatives, which it seems is legitimate enough, as others, notably Eugene and Steichen, do not hesitate to print in an entire background. The adherent of the straight print will after all come out of the present struggle for pictorial supremacy with flying colors. Stieglitz is perfectly aware of it, and it is therefore very wicked of him to encourage this at present all-pervading tendency toward eccentricity and suppression of form details. Stieglitz's other pictures are in a lighter vein. His "Street" and "Spring Showers" show a good feeling for the picturesque in street scenes, and the portrait of his child inadequately called "Spring"—nearly two thirds of all titles in this exhibition are misleading and overpretentious—is a delightful study.

Eduard J. Steichen gave rise to decided differences of opinion. To my mind, artistic as his portraits are, they suffer from a want of refinement. They are all made for effect, the high lights are dashed in a strange fashion, that is startling to say the least, but they lack sincerity of purpose. They do not satisfy one in the same suave manner, as for instance the portraits of Rose Clark. In knowledge of pictorial effect as well as in power of characterization she is a mere child in comparison to Steichen, but her work has a delicacy and subtlety which his strenuous efforts lack. Steichen reminds one of a young painter, fresh from some Parisian studio, who is overanxious to display his technical skill, who does all sorts of difficult stunts merely in order to be clever. He is at all times too much of a painter and not enough of a photographer. He continually oversteps the limitations of photography. Nevertheless we can not deny his power. He is very versatile and equally efficient in portraiture, landscapes and the depiction of nudes. Upon the soft flesh-tints of his "A Little Round Mirror" even the most fastidious critic may safely congratulate him.

Joseph T. Keiley was very well represented (eighteen prints), and his exhibit came as a surprise. He combines strength and delicacy to a remarkable degree. His "Indian Head" and "Zitkala-Sa" are as powerful portrait studies as any in the Exhibition. The blacks are deep yet transparent, and the half-tones subtle in quality. His "Spring," a few slender trees and some shrubbery all wrapped in a delicate gray, is a poem of grace. It is the best landscape in the Exhibition. Keiley is probably our foremost worker in glycerin, but his washed-out effects, in which

OUT OF THE PAST
by ROSE CLARK and ELIZABETH FLINT WADE

all outlines are suppressed, do not appeal to me. I also consider it very futile to photograph some actor in costume, blur the picture into indistinctness and then give it some historical title, as he has done, for instance, in his "Citizen Fouché!" The result is absolutely dismal. Dead persons should be treated with respect, and I hope my progeny will strenuously object to have somebody photograph a model and call it "Sidney Allan."

Miss Gertrude Kasebier, Eickemeyer, Jr., and Yarnall Abbott were only represented by their recent work, and their exhibits suffered thereby. In such an exhibition one should exhibit the best one has produced during one's whole career, and not merely one's latest triumphs. These three artists have done as good work as any, but the specimens they sent did not justify their reputation.

Mary Devens, of Boston, is coming rapidly to the front. Of her six exhibits, two, "The Ferry, Concarneau," and "La Grandmere," were surpassingly good. Few can handle black and white in masses as well as she, but her prints look too much like etchings and charcoal drawings to satisfy my taste, and I solely like them upon decorative considerations. She will probably consider this narrow-minded, as she is striving for the very result to which I raise an objection. But I beg to differ. A photograph should look like a photograph, and I am convinced that I would, at all times, prefer a real etching to Mary Devens' "On the Giudecca," although its juicy black tones are admirable.

A new note was struck by W. T. James of Chicago. His depictions of street scenes are full of movement and atmosphere. His work represents a sane and normal phase of photography which should be encouraged. There is by far too much studio photography, and in my humble opinion a depiction of real life, critically rendered, is more valuable than a whole regiment of "Citizen Fouché's."

C. H. White, of Newark, Ohio, is always interesting. He is a very conscientious worker, and perhaps the most finished of them all. His "Portrait of the Bentley Children" is a little bit affected, but nevertheless a masterly composition. He never attempts more than he can accomplish. He does not grope for the stars nor strain for big pictorial effects. He is satisfied with giving us charmingly posed and finished studies of one or several figures. His "Happy Days," three women gathering fruit in an orchard, is an exquisite composition. It has the photographer's usual elegance, simplicity, and thoughtfulness, and it is, in the literal sense of the word, a *picture,* and not merely a study as are at least eight per cent of all the other exhibits. His illustrations to "Eben Holden" attracted a good deal of attention. Truer characterization and more convincing story-telling is difficult to imagine; White does this thing to perfection. The only one who can approach him on the ground of characterization is Edmund Stirling of Philadelphia, whose "The New Stitch," and "Bad News" are excellent genre pictures. They have a pictorial charm quite their own. Their tone is rather somber and subdued, but at the same time clear and true to nature. They are well thought out effects in all respects.

F. H. Day, Miss Ben Yusuf and Miss Johnston were absentees of this exhibition, and Frank Eugene, who is at present painting in Germany, had nothing new to show. Two beautiful nudes were contributed by William B. Dyer, of Winnetka, Illinois. His "Dina Morris," a low-toned profile, is a very pleasing picture. S. L. Willard attracted more than ordinary attention by his quaint "Oenone," a nude female figure who is apparently suffering great mental anguish, as she is all doubled

ILLUSTRATION FOR EBEN HOLDEN
by CLARENCE H. WHITE

up; and his "The Veil," a lady in street dress, seated in a way that she leaves three quarters of the picture absolutely empty.

Very promising also seems to me the work of Alvin Langdon Coburn. He is the photographer par excellence of bridges and housetops. His "Gables" show a true understanding of composition, and he handles perspective and masses with rare precision. He has pre-eminently the gift of seeing objects insignificant in themselves in a big way, and he impresses me in every way as one who has fresh and unconventional talent.

But I must refrain from saying any more. To mention all exhibits is an utter impossibility, I knew this at the very start, and so I mentioned only those that strongly appealed to me.

The Exhibition afforded a unique opportunity of comparing the prevailing styles and methods of applying photography to artistic ends. And I can state frankly that there was no difficulty in identifying the various productions of the stronger and more individual workers, for they clearly and unmistakably reflected the taste, the preference, and the imagination of the individual and bore the impress of personality, and not only by the nature of the subjects selected and portrayed or by the method or process employed, but by those subtle qualities of which we only become aware through the consciousness of the effects they produce upon our feelings and imagination.

The more exhibitions of this high standard that are held, the better for photography. The Photo-Secession Exhibition at Pittsburg is sure to powerfully influence photographic activity throughout the country, and to induce many an obscure worker to rouse his courage and to contribute his share toward reaching the goal, which each and every pictorial photographer believes eventually will, or at least should, be reached.

Foreign Circulation

While the increase in the circulation of this magazine has been most gratifying to its publishers the proportionate increase in the foreign demand from month to month has been most surprising. The initial cost of securing a footing for a new publication in most foreign cities is so great that it is in a measure calculated to discourage such effort. In fact, it is only with a publication like CAMERA CRAFT that can compare so favorably with the home production, that such effort is at all advisable. It has been the policy of the publishers from the start to consider such expenditure as money well spent and the wisdom of their course is fully established. Our foreign circulation is today such that CAMERA CRAFT is more widely circulated than perhaps any other photographic publication in the English language.

THE STORY of RAMONA
from a Photographic Standpoint
By George Wharton James

THIRD PAPER

Having disposed of Ramona's home, the photographer may now turn his attention to a score of other themes and subjects treated of in the book. For instance, there is a suggestion for a great picture in Salvierderra walking through the mustard and meeting Ramona. O. V. Lange and Carl Purdy have pictured some of the wild flowers of California, but to have a priest and a typical Indian maiden meet in the cloud of these lace-like golden filaments would form a grouping charming in the extreme.

Then what an opportunity for some one, sometime, to make up a group as described on page 83. Felipe in bed sick; Alessandro singing a slow strain from one of the masses; Father Salvierderra, Ramona and the Señora Moreno looking on.

At San Gabriel, where Ramona was born, are many interesting objects besides the old Mission and its belfry, which are well known to nearly everybody. There are the old adobe houses, the Indians at their basket-making (one or two only, now to be found), and a score of things that one can find only in such a quaint old town.

Besides these there is the Canyon near Temecula in which Ramona slept, with Alessandro watching, after their elopement from Camulos.

Then, to understand the graphic account which Alessandro gave Ramona of the eviction of his people from Temecula, one should go to an Indian village and watch the natives, photograph them, talk with them and learn to understand the passionate love they have for their humble homes. Such scenes as those depicted bring their lives vividly before us. The Palomar mountain is the background.

It is one of a grand and glorious range, and the vast numbers of wild doves that used to make its slopes echo with their mournful cooing, gave to it its poetical name: the "Mountain of the Dove."

These homes do not seem much, but when one's heart has centered itself in them they are as dear as, and possibly far dearer than, the marble palaces of Nob Hill or Fifth Avenue.

Mrs. Jackson personally talked with Grevoja Pa, one of the oldest of the women who were evicted from Temecula, and learned from her much of the details of that infamous, though legal, eviction. The indignation and scorn expressed by the old lady for the people, white and civilized though they were, who robbed her of her home, might have struck some people as "funny," but not so a true woman of tender susceptibilities, as Mrs. Jackson was,—they burned deeply into her inmost heart.

Another interesting scene is depicted below. The Indians thresh, winnow, wash and sift their wheat in the same primitive fashion the people of Palestine followed

INDIANS THRESHING GRAIN

two thousand years ago. In the granite boulders shown in the picture, large holes have been slowly chiseled out with primitive appliances, and with heavy mortars the grain is here pulverized to flour.

As soon as the Spanish and whites introduced the barrel, the Indian hit upon the simple but ingenious method of converting it into a cart. The idea of hitching up a young calf and breaking it to draw such a water conveyance will certainly be novel to many who have lived in California for years, much more so to those who are going over the State for the first time. It is a wonderfully interesting sight for it shows the inventive genius of the Indian.

You will remember that it was to the Hartsel store that José ran with Alessandro's father's violin. The old building still stands as "H. H." saw it on her trip with Honorable Abbott Kinney, but it is now used as a store-house. It is fully and truthfully described in "Ramona" on page 292. "Hartsel's was one of those mongrel establishments to be seen nowhere except in Southern California. Half shop, half farm, half tavern, it gathered up to itself all the threads of the life of the whole region.

A "KISH" OR TULE-COVERED HOUSE

Indians, ranchmen, travelers of all sorts, traded at Hartsel's, drank at Hartsel's, slept at Hartsel's. It was the only place of its kind within a radius of twenty miles, and it was the least bad place of its kind within a much wider radius."

That was a truthful scene depicted on pages 296-7, where Alessandro parted with the dear treasure of his heart—his precious violin. And how "H. H." poured her scorn on the white race when, after telling of the drunken ruffianism of the Hartsel of the story and his companions, she made Alessandro say: "And these are the men that have stolen our lands, and killed my father and José, and Carmena's baby! And Father Salvierderra says God is good. It must be the saints no longer pray to Him for us."

IN THE CANYON WHERE RAMONA SLEPT

It was not long after the two fugitives left Hartsel's that they reached old San Diego. Here may be seen the graveyard, the little old chapel to the left and the beautiful bay in the faraway distance. All this is vividly described on page 306, and on page 309 "H. H." makes the hero tell Ramona the story of Padre Peyri's sailing away from his devoted Indians, when the cruel order of secularization of the Missions rendered his labor for them no longer feasible.

On page 311 "H. H." describes the dwelling of Father Gaspara. By a strange perversion of facts (even the fact of the fictitious story) this house is constantly announced as the place where Ramona was married. Now if one reads page 314 he finds that as the eloping couple reached the chapel they found it lighted, and as they peeped in at the uncurtained window a marriage ceremony was then and there being performed. The chapel is thus described on page 311: "On the opposite side of the way, in a neglected, weedy open, stood his chapel,—a poverty-stricken little place, its walls imperfectly white-washed, decorated by a few coarse pictures and by broken icones of looking-glass, rescued in their dilapidated condition from the Mission buildings now utterly gone to ruin," etc.

HOME OF TEMECULA INDIANS

The bells at the rear of this little chapel still stand, but it is a trifle apocryphal to say that these were the bells that were rung at Ramona's wedding, unless one qualifies by saying: "These were the real bells that were fictitiously rung by a fictitious sacristan, at the fictitious wedding of the fictitious heroine Ramona to the fictitious hero Alessandro."

But inside this little chapel "H. H." placed the actual scene of the marriage. From the place of their wedding "H. H." conducted her hero and heroine to San Pasquale. Here Ramona and Alessandro lived happily for a time, the only really, calm, joyous hours they had together, and which, alas, too rapidly sped away. Here their sweet child was born, and here, too, Ramona heard the sad news that dear old Father Salvierderra had passed away.

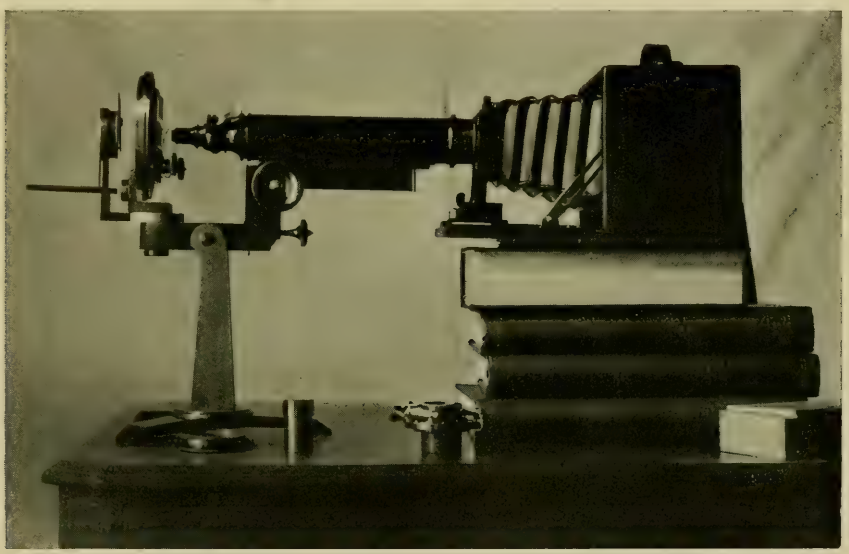
Then came the cruel eviction. Alessandro's heart was broken, though the monstrous cruelty of the white thieves who stole his home, stung him to sharp response when Ramona asked him where they were now going: "Where? I know not, Majella! Into the mountains, where the white men come not! At sunrise we will start."

Photomicrography for the Beginner

By Benj. W. Douglas

Photomicrography is a branch of photographic work that should appeal more generally to amateurs than it does. There are few amateurs outside of the ultra-scientific set that even know the meaning of the word—using it interchangeably with microphotography. The latter word means a microscopic photograph of an object—the former a photograph of a microscopic object. But to the work in hand; the value of photomicrography has been under-estimated. It has a value not only to the scientific teacher in the school-room but in a popular way as well.

My first work in this line was done several years ago when, as an assistant biology teacher in the Shortridge High School, I made a number of pictures from prepared botanical and zoological slides.



My apparatus at that time was simply a make-shift but it worked so well that I have not felt inclined to supplant it with more expensive arrangements. The only thing necessary to the production of photomicrographs, that the average amateur does not have is a microscope, and that together with a collection of slides can usually be borrowed from the family physician.

The accompanying picture of my apparatus needs but little explanation. The tube of the microscope is bent to the horizontal position and the reflecting mirror removed so that the direct light from a window will illuminate the object. With the "scope" in this position the slide should be adjusted and held firmly in position either by spring clips or rubber bands and the lenses adjusted to their best focus. Now take a camera (any one with a removable lens) and adjust the eye-piece of the microscope to the opening in the front board after removing lens and shutter.

This connection is the only place where care is needed. It is best to wrap an old focusing-cloth around both camera and microscope to avoid any possibility of letting in light at this point.

By looking on the ground glass you may now see the image of your microscopic object. It will not be very bright and you will have to use a good focusing-cloth to distinguish things perfectly, but it is all there.

There can be no rule given as to the length of exposure. That will vary according to the quality of the microscope, source of light and condition of the slide. In my work the exposure varies from fifteen seconds to three minutes and longer. I do not use any special developer on my photomicrographs, using the same one (an original pyro formula) for them that I employ on portraits, landscapes, etc.

Pictures of very common objects made in this way become objects of interest to any one, and of decided value to science teachers in high schools and academies that are poorly supplied with microscopes, offering a cheap and interesting method of teaching microscopic botany, zoology and other kindred subjects.

HEAD OF MOSQUITO

For the amateur who desires to make his own slides, a few words on the preparation of simple objects would not, I think, be very much out of place here.

The materials needed are: one dozen microscope slide blanks (thin glass plates 1 inch by 3 inches). A similar quantity of cover glasses (clear glass squares or disks, as thin as paper and a little less than an inch across). A bottle of good strong alcohol, blotting-paper, rags, etc. The glasses described should not cost over a quarter and may be had of any dealer in surgeons' supplies.

To begin with, suppose we desired to make a mount or slide of the wing of a common fly. First thoroughly clean a slide and cover glass, using lots of alcohol to remove all the grease. Then place the wing of the fly on the glass slide and cover it with a drop of water, place the clean cover glass over the object, draw out the superfluous water with a bit of blotter and the slide is ready for use. If glycerin is used in place of water the object will be much less liable to float about on the slide. This briefly, is the method employed in making temporary mounts and may be used in preparing almost any small object for microscopic examination. However, mounts so made will not keep and are intended for immediate use only. The making of permanent mounts, such as are sold by Bausch & Lomb and other firms, is a much more difficult operation and is not of necessary interest to the beginner in photomicrography.

Camera Work Along a Famous Road

By Wendell G. Corthell

It has been the good fortune of the writer, on various occasions, to visit quite a number of the Swiss passes, nearly a round dozen in number. Over all but three he has ridden in a private carriage and had ample time to take in leisurely the marvelous scenery that enchants the traveler from every land.

In the summer of 1902, on as perfect a day as was ever made, he rode from Meiringen to the Rhone Glacier, over the famous Grimsel Pass. It was a red-letter day indeed. The whole twenty-three miles was one marvelous panorama of thrilling interest.

WHERE SHERLOCK HOLMES MET HIS DEATH

Standing on a bridge in Meiringen, we counted eleven waterfalls, either one of which would have made the fortune of an American town. The camera did good work that day, and a fine Goerz lens kept its reputation for faithful service. The illustration of the Reichenbach Falls shows one of the most picturesque sights in all that land of beautiful things. Here Sherlock Holmes met his frightful death, afterwards to make a post-mortem escape at the hands of his creator, Conan Doyle.

Far up the Grimsel Road we come to the fearful Handegg Falls, of which the camera refuses to record the terror inspired by the mad plunge of the torrent into the caldron below. Here the river Aare makes a bold leap of two hundred and forty feet into the abyss. On either side the jagged rocks dispute the fall and

toss the waters about in a dense spray in which the sunlight makes beautiful rainbows that even a Goerz lens fails to record on the sensitive film.

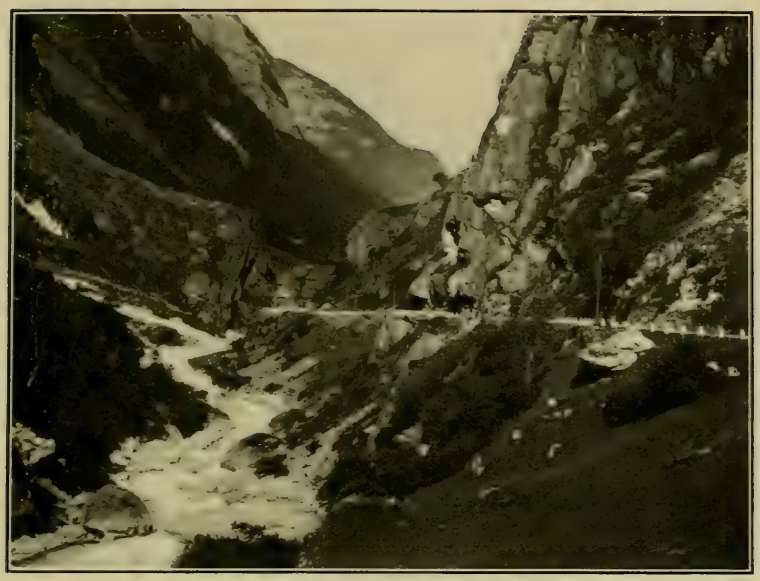
But a thousand beauties and grand views captivate the traveler along that splendid road. The eternal snow-capped mountains rise on either side like the walls of heaven, and compel one to keep on the narrow way of the Pass by the ever-rushing stream. All day the sound of plunging waters, the river, the falls, the cascades, the rivulets, are ever present and demanding attention.

But the road, that wonderful achievement of Swiss engineering, is ever a marvel. Macadamized all the way, winding now in the fertile valley, now along the shelving rock, now skirting the deep abyss of the river, now piercing the bold, jutting mountain, now zigzagging up the slope of the almost inaccessible heights,

THE FRIGHTFUL HANDEGG FALLS

always guarded by stone posts, never straight, never out of repair, never commonplace, but ever pushing on and on up along the mountain stream till the Aare diminishes from the torrent in the famous Gorge at Meiringen to a tiny rivulet at the top of the Pass, 7,103 feet above the sea. Here the trickling stream is hastening down the road we have come, to make its way through far-away Berne into the Rhine, and out through Holland into the North Sea.

On the crest of the Pass there is no flowing water, but in a few minutes we find a tiny rivulet running in a new and opposite direction, and that we know is the beginning of one of the tributaries of the Rhone, which will find its way down through the Rhone Valley to Lake Geneva, and on to Lyons and the far-away Mediterranean.



THE GRIMSEL ROAD

In the morning, in the pleasant pastures of the lower valley, we had felt the heat of an August sun, but by mid-afternoon, after ascending more than a mile in height, we resort to the recreation of snow-balling to keep warm.

At the Grimsel Hospice, while resting the horses, we gazed far up the sheer mountain whence led our zigzag road, and as far as we could see, caught a glimpse of a tiny moving object which we soon made out to be a coasting cyclist.

THE ETERNAL SNOWS

The Swiss passes are a paradise for the camerist. He does not have to look far away for mountains. He is in them, and can bring away many a prize.

Outlook for Amateurs

By A. G. Marshall

Director Department of Composition, Correspondence School of Pictorial Photography; Director Home (Correspondence) Art School, and Thousand Island Summer School of Art.

How many amateur photographers are there whose eyes are open to the golden fields of opportunity that lie before them today? The creation of the means for popular photography, and the development of its practice have been so recent and so rapid, that its possibilities for much besides mere pastime have been realized and acted upon by but very few. It is probably little known, and still less considered, by the great army of negative makers, professional as well as non-professional, that photography owes to amateurs the discovery of its principles, its original processes, and most of the improvements, mechanical, optical, chemical, technical and artistic, which make the art what it is today. The professional photographer of the past was not, in general, seeking improvements in the direction of popularizing the art. His interests all lay in the other direction; to keep it surrounded with as much mystery and secrecy, and attended with as much difficulty and expense, in the eyes of the public, as possible. Hence it came about that modern photography owes most of its technique and practically all of its art, to experimental mixers of chemicals, polishers of glass, whittlers of boxes, and dabblers with paint and crayon—men eminent indeed in their professions of mixing and polishing and whittling and dabbling, but not professional users of the camera.

Amateurs—men who worked for *love* of the work—were thus the first to catch and hold the light-penciled image; then to make light-engravings—better and better—easier and easier—more and more practical and available; until the net result, so far as materials and methods go, is placed within the grasp of everybody. The amateur works primarily for love—the professional for money; that is the distinction in its simplest and sharpest terms. A few professional men, all along, have succeeded in happily combining the two attitudes; and many who have taken up photography at first from love, have ended by becoming professionals, and ranking, in not a few instances, with the highest.

Photography now has reached a parting of ways. On the one road she will travel as "the handmaiden of arts and sciences" which she is already serving in ten thousand admirable ways. The new methods of astronomical discovery, for example, owe their very possibility to photography; and without photographic aid, in "process engraving" the broadcast dissemination of printed copies of great works of art, which has come about within the past few years, could never have been. The other road is the pathway of pure art—photography for its own sake, as a means of personal expression. On this track the turf is still green, though pressed down here and there by a few pioneers, men and women starting almost exclusively outside the professional ranks, and many of the very choicest among them remaining amateurs from preference. There is, or should be, no conflict between the followers of the two roads. Each has a clear right of way; each, work of indispensable value to perform. In fact it is almost wholly in the field of portraiture that there has been any serious contention; and this is mainly due to this field having been from

the first thoroughly exploited by professionals for the money in it alone. This kind of commercialism has been both blind to the art possibilities of the craft, and short-sighted in denying them. The professional ranks are only now beginning to realize that they have been fighting a losing battle. Of course there have been some conspicuous exceptions to this broad statement; but they were, and are still only exceptions, standing like beacons miles apart on a rocky coast.

It would be rash to assume that the last word has been said on the technical side of photography; though it seems probable that no new principles so revolutionary as were printing from negatives and emulsion photography, are likely to be discovered or invented very soon. Although the future may hold startling surprises in this line, yet the equipment and paraphernalia of photography are now so nearly perfect that only minor changes and improvements in the direction of convenience are to be anticipated. And this perfection of the means not only makes possible, but most persuasively invites the practitioner to attempt higher attainments than have been reached in the past.

A few amateurs recognize this possibility, and are acting upon it. A few professionals also are doing it, handicapped though they usually are by commercial tradition, from which the amateur is happily free. But as yet the large majority of amateurs sense this opening only vaguely, or not at all; and so are contented to do, merely for amusement, poorer work than the ordinary four-corners professional; and that is about as bad as can be.

And still, if he did but know it, the amateur has everything in his favor, everything but the spur of necessity, to enable him to do great things. If his taste and bent be towards the scientific and analytic, by all means let him take up some congenial specialty in that line, and pursue it to some purpose; instead of fooling at all sorts of subjects, and amounting to nothing at any. There are fields in the investigation of insect life, the habits of birds, animals and fishes; the study of flowers, plants, fungi, shells, minerals, etc., in every department of nature; which are easily within reach of any intelligent amateur; and which will richly repay careful photographic study, in knowledge and pleasure, and in money and fame as well. Many magazine and book publishers want just such records of nature in popular photographic form; and there are scientific societies burning to crown with honor and an immortal name, the discoverer of new facts; while the governments of this and other countries anxiously seek light upon thousands of obscure or unknown phenomena in natural history. But to do any such work successfully, the amateur must become a specialist, and an enthusiast (although a quiet one) in the line of research he selects.

Many departments of nature are only beginning to give up their secrets to patient watchers and skilful recorders. There is room in every direction for the right men and the right women, with the right endowment of perseverance and a decent camera, to become the highest authorities upon some chosen specialty. And there are still other fields, in the heavens above, about which wider and more exact knowledge is of great importance. The forms and movements of clouds, storms, lightning, cyclones and all that pertains to the atmosphere are waiting for more thorough investigation. A record of the utmost value might be made by photographing the sky at regular intervals daily, with extra exposures for storms and unusual phenomena; accompanied by notes on the direction and velocity of the wind, the temperature and the state of the barometer and hygrometer. This

would be more complete and valuable than any weather station records as kept now. It would take about one's whole time, and considerable means; but there surely must be a few amateurs in existence who could give the one and furnish the other. This however is a most extreme demand on enthusiasm and devotion to a cause. Nearly every special line of natural history photography can be well followed in one's leisure hours.

It is however to the pictorial, rather than the scientific, that amateurs are more generally attracted; and it is on this side that the most conspicuous failures are seen. This lack of art knowledge is not surprising, in view of the difficulty, until very lately, of obtaining intelligent and practical instruction in art principles applied to photography. The art field offers immense opportunities to the camera student. Here again the highest results are most likely to be reached by specialists. Yet the range need not be so restricted as with the scientific specialist. The field would be sufficiently narrowed, for example, if one devoted his talents and energies to child-life, or domestic or wild animals, or landscape. In fact it is of vital importance for the art specialist to study several lines of subjects, which merge more or less into his particular line. The gates stand wide, and the rewards of merit are tempting. Personal satisfaction with expanding powers comes first; then if one desire them, the usual honors and emoluments due to successful achievement.

Those who wish to pay their way and win distinction in landscape, marine, genre, architectural and street scenery, winter effects, or any other line of pictorial effort, can find plenty of avenues open today. Magazine editors are clamoring for the best that money and prizes can evoke; publishers require illustrations for books of every kind; there is the boundless field of lantern-slide work, for education and entertainment; and the ever-rising tide of advertising, demanding daily new pictorial ideas, to illustrate and embellish every conceivable branch of industry and commercial activity. Not all of these want the highest art; but many of them do, and are straining every nerve to get it. All however want good work. The public has become sufficiently educated to expect a certain, by no means low, standard, in whatever pictures, even cheap prints, it pays for, or condescends to look at gratis. And no one knows this better than publishers and advertising managers. Even in purely scientific photography there is little that does not need sound pictorial handling to present it in the most effective form.

And for those lofty ones—*amateurs par excellence*—who care for none of these hireling rewards, there is the laurel—the medal of honor—the thrilling word of recognition from the clear-eyed powers who preside over exhibitions and salons, and the approval of the infallible beings who record their judgments and profess to anticipate the verdicts of posterity in the art periodicals and critical columns of the public press.

And if, as is to be hoped and believed, there are still finer spirits, to whom even such praise is of no account, whose photographic toil is, in the purest sense, its own recompense and happiness; they at least will find their joy enhanced if they do not hide their light under a bushel, but share the enjoyment of their best with as much of the world as possible. But all—all—all—need, daily and unceasingly, for the attainment of any worthy reward or lasting satisfaction—art, true art, and ever more art.

PORTRAIT OF MRS. H.
by FRANK EUGENE

D. F. MULLENDER
Secretary

L. F. TERKELSON
Vice-President

O. H. BOYÉ
President

H. C. VAUGHAN
Treasurer

Photo by Vaughan & Keith

NEW OFFICERS OF THE PHOTOGRAPHERS' ASSOCIATION OF CALIFORNIA

Lantern-Slides From Half-Tone and Line Illustrations Without the Use of a Camera

By Bernard C. Roloff

Quite recently I came across what was to me a novel method of copying magazine and book illustrations, line work and half-tone, for lantern-slide projection. Having worked out this method to my own satisfaction, and found it to be a great saving in time and plates as well as the best with which to secure almost perfect technical results, I propose herewith to give a specific description of same enabling any one to successfully copy illustrations for lantern-slide and other purposes.

My main reason for preferring this method to the old style of copying with the camera, is that it allows the lantern-slide worker who does not possess a camera,

or the amateur whose instrument is not provided with sufficient bellows extension for copying, to secure the same and even better results without going through the rather complicated methods of arranging the picture to be copied, securing proper lighting to prevent the appearance of grain, leveling, etc., and furthermore it does away with the necessary loss of detail and brilliancy which is usually found to be the trouble with pictures copied with a camera.

It is a well-known fact that it is extremely difficult to copy a picture and secure the same result as the original, a change occurring on the slightest variation of exposure and development. I acknowledge that it is also possible with my method to make mistakes in exposure and development, but the whole process

being as simple as making a print, it is not difficult to discover the absolutely correct exposure and even if a mistake were made it is easily done over or corrected, while at the same time the work may be done in the evening without having recourse to daylight which is so necessary to the amateur who wishes to copy and is not provided with an expensive arrangement for copying with artificial light. It is thus possible to choose your own light (daylight or artificial in any form) and preserve every delicate half-tone without the harsh look of a copy, that is, without the grain showing to the extent it does with the other method, which leads a professional friend to term its appearance "a wiry effect."

To proceed: We will take for example a half-tone illustration from a popular magazine. It is found on examination that the back of same is covered with printed matter. Now we want to use that illustration as a negative, and the sensitive plate as if it were a positive, or rather as if we were printing on Velox paper. Of course if we were to print through the illustration as it is, the printed matter on the back would also show and consequently spoil the result. The first thing then is to get rid of the printed matter on the back. A difficult job, think you? It can be done however. Provide yourself with a small wad of cotton or a small soft sponge and after placing the illustration (which has been cut out of course) face down on a piece of ground glass or other surface on which it will not slip easily, slightly wet the back until the dampness shows signs of striking through. Not thoroughly wet, understand, as that might injure the ink on the face. With a piece of medium emery paper commence gently rubbing the moistened surface until all of the ink is off the back. This will leave a somewhat roughened and hopeless looking surface, but by using a finer grade emery paper (the surface having by this time dried out slightly), it is found that the roughness partially disappears.

Here is where the chemistry (what there is of it) steps in, but even that is extremely simple you will find.

Make up the following solution: "Three ounces of gelatin dissolved in one ounce of water, then add one ounce of albumen and finally enough salicylic acid to preserve the solution, which means just a few drops."

The albumen above referred to may be procured by beating up the whites of eggs and then adding as directed.

The above thick substance is lightly smeared on to the roughened surface of the paper, care being taken not to leave streaks, and for this reason either a soft wad of cotton or small camel's-hair brush should be used to apply same. Result—a new surface on back, smooth and finished as before.

Now we are ready to make our negative, unless the paper does not appear translucent enough, when it may be rendered more so by the application of vaseline, Canada balsam or a mixture of paraffin wax and coal-oil—one ounce of the latter to three of the wax gently heated until dissolved. This should be rubbed in until none remains on the surface, and if the latter formula is used the paper should now be slightly heated, placed between blotting-papers for a few hours, rubbed again with a clean cloth to take off surface oil, and the illustration may then be placed in a regular printing-frame, this to be taken into a dark room and the sensitive plate of proper size placed over it film side down as in making a print. The exposure may be easily determined, one second with a Welsbach being usually sufficient for the least transparent illustration. The plate may now be developed

in the usual way and if it is desired to secure a brilliant contrasty result, which is so desirable in lantern-slides, a special developer should be used.

The following will give excellent results:

Edinol	20	grains
Sodium carbonate	100	grains
Sodium sulphite	100	grains
Hydroquinone	10	grains
Potassium bromid	2	grains
Water	3½	ounces

For use, mix with from 4 to 6 volumes of water.

The accompanying illustration shows a print made from a negative secured by this method which is a good half-tone.

If the picture be not too large of course a regular 3¼ by 4¼ plate could be used, but if the original illustration it is desired to copy be larger than this, it will be necessary to use a larger plate for the negative and then reduce the latter image in the usual manner directly upon a lantern-slide plate. Workers not possessing a camera and desiring to use this method will of course be restricted to illustrations which come within the confines of a lantern-slide plate.

Illustrations will undoubtedly be found which do not require the above process, being devoid of printing on back and with these the operation is much simplified, the latter part of the process only being applicable, i. e., that relating to making the half-tone transparent, and then the final exposure and development. Those of our readers who find that they would like lantern-slides from unmounted prints which they have secured through exchange or otherwise, and of which they

do not possess the negative can proceed in the same manner, and it will be found that extremely good results may be had, especially from such papers as solio and aristo platino.

If it be found on developing the negative made in the herein described manner that same is lacking in detail or strength in parts, an examination of the half-tone will show where a little red ink applied with a fine pen or brush will do wonders for the final result, serving to strengthen the picture at its weak points. This gives play to the artistic abilities of the worker and many novel results may thus be secured.

By operating the above-described process it is possible to secure well-balanced negatives from suitable illustrations from which excellent lantern-slides may be made as well as good enlargements or contact prints containing every detail of the original, plus an added softness which could never be secured by direct copy in the camera.

The New Officers of the Photographers' Association of California

On page 262 of this issue, you will find a picture of the new officers of the Photographers' Association of California. This group was taken especially for CAMERA CRAFT and shows four of the best known photographers on the Pacific Coast. Mr. O. H. Boyé, who succeeds Mr. Webster as President, is all that the head of a growing and ambitious Association should be, while Mr. L. F. Terkelson, the new Vice-president, will make an energetic and efficient officer. Messrs. Vaughan and Mullender succeed themselves as Secretary and Treasurer. "Re-elected for cause" would fittingly describe their cases, as the first annual reports submitted to the Association by these gentlemen convinced every one that the right men were in the right places, and should remain.

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Edited by FAYETTE J. CLUTE

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Credit to Whom Credit is Due

Six months ago the Editor of this magazine wrote the officers of the several Postal Camera Clubs, State Amateur Associations and Photographic Exchanges asking that they prepare a petition addressed to the Department of Concessions, Louisiana Purchase Exposition, setting forth the desires of their members as nearly as could be ascertained. Such petitions to be signed by the officers of the several organizations and forwarded to me at the earliest opportunity. A later communication went to each one cautioning them that the free admission of 4x5 and smaller cameras, used without tripods, was all that could be asked. To one who has not undertaken a thing of this kind, the amount of correspondence involved would seem impossible. I was told that the effort was useless; that the Exposition officials had no doubt long ago settled the matter; that as amateurs their petitions would have little weight, and that the magazines were the ones to agitate the matter.

However, a willingness to do all that was possible, a desire to further any project that might advance the possibility of an ultimate granting of a concession so dear to the hearts of the workers enrolled as members of these organizations, resulted in a most hearty and enthusiastic carrying out of the proposed plan with the result that practically every non-local organization of a permanent character was represented in the joint petition placed in my hands to be presented to the proper officials. The following officers of their respective organizations entered most enthusiastically into the work:

W. H. Monroe, Director Postal Camera Club, Leominster, Massachusetts.
H. R. Pfaff, Director Interstate Postal Camera Club, Jennings, Alabama.
Fayette J. Clute, Director "Overland," San Francisco, California.
Chas. E. Fairman, President Postal Photographic Club, Washington, D. C.
Geo. E. Moulthrope, Sec'y American Historical Photo. Society, Bristol, Conn.
August Luft, Pres. Pan-American Camera Workers' League, Aspinwall, Pa.
Miss Lou Tillottson, Secretary Nebraska State Camera Club, Omaha, Nebraska.
L. T. Brodstone, Sec'y American Camera Club Exchange, Superior, Neb.
G. C. Kirkland, Pres. International Photographic Exchange, Denver, Colo.

An aggregate membership of over twelve thousand being represented. To Will H. Fouts, a promising young attorney and member of the firm of Miller & Fouts, Dayton, Washington, was entrusted the work of presenting in as brief and well marshaled form as possible the main points covered by the several petitions,

thus permitting the facts being presented in a direct manner without the necessity of a reading of the entire mass further than to verify the statements made in this main presentation of the matter.

The next serious matter was the placing of the petition in the hands of the proper officials in such a way that it would be assured the attention that its importance merited. The name of Mr. H. C. Reiner, Secretary M. A. Seed Dry Plate Company, at once suggested itself. In Mr. Reiner's hands the matter was assured the most favorable presentation possible. The two following letters are self-explanatory:

DAVID R. FRANCIS, PRESIDENT WM. H. THOMPSON, TREASURER WALTER B. STEVENS, SECRETARY

WORLD'S FAIR, ST. LOUIS
1904
LOUISIANA PURCHASE EXPOSITION

DIVISION OF CONCESSIONS AND ADMISSIONS

NORRIS B. GREGG, DIRECTOR

OFFICE OF THE DIRECTOR

ST. LOUIS, U. S. A. March 16, 1904.

Mr. Fayette J. Clute,

San Francisco, Cal.

Dear Sir:--

Yours of the 25th enclosing petitions from the various Postal Camera Clubs, Photographic Exchanges, State Amateur Associations, and bearing the names of 12,000 photographic workers, was delivered to me by Mr. H. C. Reiner of this city a few days ago.

The petitions and your letter were given careful consideration at our last meeting, and were the only comprehensive documents of this nature that were presented to us.

I am pleased to say that this petition influenced us in our decision to admit the 4x5 and smaller cameras to the Exposition free of charge.

I trust that our action in this matter will meet with the approval of the petitioners, that they will profit thereby, and that the Exposition may receive the evidence of appreciation which these petitioners have promised to bestow in return.

Yours truly,

NORRIS B. GREGG,

Director of
Concessions & Admissions

St. Louis, March 17, 1904.

Mr. Fayette J. Clute, San Francisco, Cal.

Dear Mr. Clute:—Your letter of the 25th ultimo enclosing petitions of the several Postal Camera Clubs, Photographic Exchanges and the like reached me promptly, and I at once took up the matter with the Exposition officials.

There could be no action taken until a meeting of the officials, although I was promised by Mr. Wakefield, Chief of the Department of Concessions, that all consideration would be given the matter.

I have just been advised that the desired concession has been granted, and am assured that your petitioners greatly influenced the decision.

With highest regards, I remain,

Very truly yours,

H. C. Reiner.

I desire to thank in this manner and with as much publicity as possible, the officers and members of the organizations who made this petition so effective by their enthusiastic co-operation. That they have the unqualified thanks of their brother workers, it is needless to affirm. That the large body of camera users who will visit the Exposition will appreciate the concession made them by the Exposition people is also assured. That they will show their appreciation in a substantial manner is hoped. Let us remember that the results of this somewhat experimental action on the part of the St. Louis officials, from a financial point of view, will no doubt greatly influence the position taken by future Exposition managements. Both this thought and the desire to demonstrate the sincerity of their appreciation should assure consideration on the part of camera users, and encourage the purchase of all possible supplies within the grounds.

All thanks are due *The Camera* for the prominence given the news of the concession on the cover of its last issue. Mr. Chambers can claim the distinction for his publication of being the first in the photographic field to make the news public. One or two of our "esteemed contemporaries" have claimed that they were the only ones doing anything to secure the desired concession, but the entire lack of publicity heretofore given this petition makes the mistake but natural. That they will all unite in helping to give the advantages offered all possible publicity, goes without saying.

An International Salon Congress

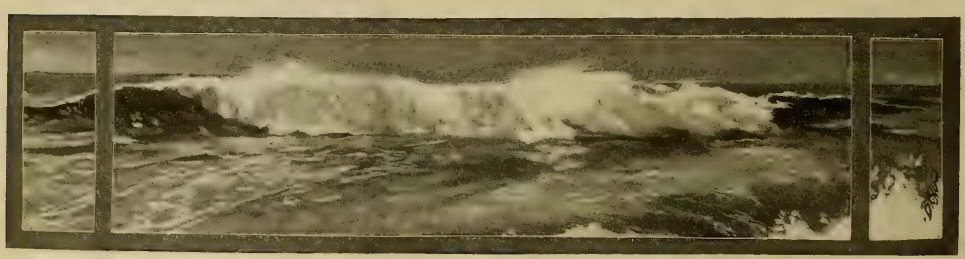
In our March issue we mentioned, editorially, Robert Demachy's suggestion in *Photograms of the Year*, 1903, regarding such a congress and added that Camera Craft would do all in its power to further the formation of such a congress. The many letters of encouragement and appreciation that have been received inspire us to believe that some such organization is imperatively demanded. Not only have many of the best workers in this country written us of their endorsement of the idea but from abroad we have received most hearty assurances of support. Mr. H. Snowdon Ward of *The Photogram* assures us that he will watch with interest our undoubted success in bringing the formation of such a congress to a reality and will do all within the power of *The Photogram* to assist in the culmination in actuality of Mr. Demachy's idea. We here quote the article mentioned, for the benefit of such of our readers as may not have Mr. Demachy's writing at hand, or at least the portion bearing upon the subject:

But the exhibition question is getting to be an onerous one on both sides. On the side of the exhibitor who has to pay carriage on all his frames, though about half of them come home covered with elaborate carvings, not intended for ornament, pierced through and through by nails and gimlet holes, or simply smashed. I am sorry to say that certain English packers have a specialty for this kind of sport. On the other side, the exhibition committees are having a hard time of it; and exhibition expenses are steadily rising. Here is one of the most exasperating cases for honorary secretaries, a case that is becoming so frequent that special rules will have to be introduced to prevent its occurrence. An International Salon is held on the continent, let us say in Paris. The duties on foreign frames are heavy, and the exhibition committee will manage by special influence to obtain from the Custom House a *permis de séjour* of two months without duty, but on the condition that every frame is stamped on arrival with the Custom-House seal, and that the same number of frames with the seal intact shall be sent back by the same port or the same way of ingress by land.

During the exhibition ten or twenty letters will come from foreign exhibitors asking as a matter of course to have their frames sent on at the close of the Salon, either to the Brussels or Hamburg exhibition or to some other town on the continent. There are joyful times in store for the honorary secretary. For the French Custom House announces its intention to withdraw the permit if any of the stamped pictures leave France by another route. The Custom House of the foreign country, whichever it is, across whose frontier the pictures will have to pass, claim their share of duty; the exhibitors refuse to pay extra charges; the foreign Salon wires agonized appeals in favor of its expectant catalog and the exhibition committee finishes by paying out of its own pocket a quantity of extra and heavy bills for which nobody is thankful.

Exhibitions are more than useful, they are necessary. Yet well-known exhibitors, whose works are precious examples for photographers and convincing proofs for the public, are quietly dropping out as soon as their reputation is made and they have had time to get tired of the bother and expense of exhibiting—it is no joke either for the organizers who work like navvies and often get nothing but abuse for their pains. Here is a golden opportunity for the honorable secretaries of the five recognized Salons of England, Belgium, Germany, the United States and France. Syndicates and Congresses are the fashion nowadays. Would not a *useful* Congress be a delightful novelty to decide on the dates of the opening of the different Salons which constantly overlap each other, arrange for collecting the best work in each country for foreign exportation, settle the sharing of expenses and many other important details?

This suggestion herein put forth should appeal to all sincere well-wishers of our art as an idea that is sure to prove most beneficial in its fruition. Our Dr. H. D'Arcy Power, who will start on an extended trip through England, Germany, and France before this issue of CAMERA CRAFT leaves the press, will present the matter to the attention of the leading pictorialists in these countries. Dr. Power's contributions to CAMERA CRAFT have been most extensively reprinted and commented upon in not only the English photographic publications but in those of Germany and France. For this reason the doctor can feel that he is far from being unknown, even to the workers familiar only with the publications in their own language. This, together with his high rank as a linguist, assures him no small measure of success; even were his message less attractive. Pending the report of Dr. Power, we would be pleased to have any suggestions from clubs and societies either at home or abroad that may feel an interest in the movement.



A Photographic Digest

By H. D'Arcy Power, M.D.

Farmer's Reducer

Some little while ago Dr. C. Stunenberg published in the *Revue Suisse* an account of the method of employing this well-known reducing agent that is well worth tanslating. The author protests against the usual careless way of putting the mixture together. He states that excess of the potassium ferrocyanid means destruction of the half-tones and that too great concentration is also hurtful.

"The best relation for both substances is a solution of 1:20." Again the reaction of the bath greatly influences the results. Alkalis acting as a restrainer. The following formula is recommended:

SOLUTION I.

Hypo	50 grams
Water	1000 c.cm.

SOLUTION II.

Hypo	50 grams
Soda	100 grams
Water	1000 c.cm.

SOLUTION III.

Potassium Ferricyanid	50 grams
Water	1000 c.cm.

The reducer may be used for the following purposes:

A—Glass on paper negatives.

1. For general reduction of excessive density.
2. To clear fog—due to usual causes.
3. To modify character of negative by reduction and subsequent intensification.

B—Paper positives.

1. General reduction of over-developed bromid prints.
2. To clear results of over-exposure and excessive development.
3. To modify the print by reduction followed by intensification with mercury, gold or platinum.

For A 1 and B 1 use 100 c.cm. of solution II with 5 c.cm. of solution III.

For A 2 and A 3 use solution I and as much of solution III as the clearing demands.

For A 3 one commences with 100 c.cm. of solution I and 10 c.cm. of solution III, adding a little more if necessary until every trace of fog is removed.

In order to change the character of a negative, use, for a very dense negative, 100 c.cm. of solution II and 5 c.cm. of solution III, leave it in the bath until the shadows are quite clear, and then intensify with uranium (strong working) or gold and mercury (weak working). In the first case the reduced negative is thoroughly washed and placed in solution III until bleached, and is then placed in a one-per-cent solution of uranium chlorid until it attains the desired density. For the second method the reduced and washed negative is bleached in a bath of—

Water	1000 c.cm.
Mercuric chlorid	20 grams
Ammonium chlorid	50 grams
Hydrochloric acid	8 c.cm.

Wash thoroughly and place in the following gold bath:

Water	1000 c.cm.
Gold Chlorid (1 per cent solution)	30 c.cm.
Ammonium sulphocyanid	10 grams

When the negative has attained sufficient strength it is to be well washed. If the contrasts are not sufficiently marked it is again immersed in 50 c.cm. of solution I and 10 c.cm. of solution III.

In the treatment of bromid papers the same rules apply, except that the solutions are to be diluted two or three times.

Stereoscopic Night Photographs

Mr. E. Law in an article in the *Photogram* opens up a subject that I believe is practically new, namely, the taking of street scenes at night by the stereoscopic camera. The examples with which he illustrates his article show what excellent and interesting

results may be obtained in this field. These night stereograms, have a wonderful realism more striking than even day stereoscopy affords. So far as their production is concerned the rules given in my recent article on night photography apply here as in single view work.

Distant Objects Concealed by Mist

The rendering of landscapes under these conditions is a common problem on the Pacific Coast. The following reply by *Photography* to an inquiring correspondent may be of service to many:

"In the gray light of winter there is always a certain amount of mist present, and it is accentuated in the negative. It is neither possible nor desirable to avoid it altogether, as in doing so the natural appearance of things would be falsified. The use of an orthochromatic plate and a pale yellow screen will lower the intensity of the blue and violet rays, in which the mist is rich compared with the light reflected by foreground objects, and will enable results to be obtained resembling those seen by the eye. This applies only to transparent mist, and not to the dense white or yellow mist and fog through which the sight can only penetrate partially.

"The exposure must in all cases be sufficient for the foreground objects, as appears to have been the case in the negatives sent. They have, however, been developed much too far. The golden rule is to develop only so far that detail in the high lights will print out before the shadows are blocked up. The time system of development enables this to be done with certainty, as in its use the density of the high lights is the standard that is employed.

"The improvement of such negatives is by no means an easy matter. The method of bleaching in a solution of chromic acid and potassium bromid, followed by redevelopment, that we have frequently suggested, would effect a cure, but in unaccustomed hands may lead to disaster. A safer method, though one involving more trouble, is to make a perfect transparency on glass, and then to make a new negative from that."

An Enlarging Hint

H. S. M., in the *English Amateur Photographer*, says: "In projecting the enlarged image, it will be found very convenient to have the easel covered with a light gray paper. (The "Smoke Gray" of the *"Nature Tint"* Series answers admirably.) The benefit is as follows:

"If the easel be covered with white, the pinning up of a small piece of bromid paper (when only using, perhaps, a small portion of a negative) is very difficult owing to the trouble of determining where the edges of the bromid cease and where the easel surface begins. Consequently uphill horizons and falling architecture are common and annoying occurrences. But when "pinning up" on the gray surface, the white bromid shows the portion of the negative required in very bright contrast, and with sharply defined edges, enabling one to adjust the picture with absolute certainty. For accurate focusing, which is somewhat difficult on the gray, a piece of white paper should be temporarily pinned to the easel. It is useful to be able to, as it were, *analyze*, or pick out the best pictorial portions of a negative by exploring the gray surface with a piece of white card cut to the size of the proposed enlargement."

Control in Photographic Printing

Mr. Nelson R. Cherrill was the lecturer at the London Camera Club on Monday in last week, and explained (for the first time to any audience) his new method for securing control in printing. After glancing at the subject of control from the historical point of view, and indicating some of the arguments which might be used for and against the modification of the strictly photographic image, Mr. Cherrill pointed out that there were two different kinds of control which could be made use of in photography—one being a fixed, and the other a variable or progressive control. The former had a final and fixed effect, which was no longer capable of variation, but in the case of the latter there was no fixed limit beyond which it was impossible to go, and it was of such a control that he would speak that evening.

To begin with, his invention depended on a perfect system of register, and the first problem was therefore to make a printing-frame which should admit of the negative and the print being separated, and the negative removed altogether from the frame, with perfect facility of putting them back again into position in such a manner that there should be no suspicion of any want of perfect register. To form a perfect register there must be three points of contact, and three only. As a result of many experiments he

had found that the three points of contact were best obtained with only two pins. By means of the blackboard, Mr. Cherrill showed how he arrived at the three points of contact by making the pins of a certain considerable stoutness, and by using a V-shaped notch for two of the points of contact, and a straight-edge for the other. There was one very important practical outcome of this arrangement. If the pin on the straight-edge be moved a little to the right or left no difference would be made in the register. Hence it was evident that if several registers were made with only moderate accuracy as to the distance the pins were from one another, all plates which fitted one would fit another.

The printing-frame in what he believed to be its final form was merely a frame of wood enclosing a glass plate. On one side of it were two rigid cylindric steel pins to form the register, at each end was a brass hook to hold the back, and between the pins was a simple spring clip. The back of the frame consisted of a rigid board, covered with soft felt or flannel on the inside, and over this was spread a layer of india-rubber sheeting.

How were the negative and the prepared paper to be fixed in the frame? The simplest form of support he had found was a frame made in very thin metal. If the negative was a film the best way to support it was on a sheet of celluloid. The best method of fixing the negative was to use strips of adhesive plaster. Alcock's porous plaster was the best material he knew of for this purpose. No damage was done in tearing off the plaster, even if it went right over the negative film.

As regarded the attachment of the printing-paper, the india-rubber sheeting on the back of the frame was brushed over with a little solution of india-rubber in benzole, which, being on a non-absorbent base, never dried, but always remained more or less tacky. By this means the printing-paper was, as it were, mounted on the back of the frame, but though mounted it came away in a moment when the print was finished, and the frame back, once prepared, lasted quite a long time in good condition.

In the first place, such a frame, he claimed, gave a remarkable degree of control over the focal definition of a picture. His plan to reduce excessive sharpness and painfully cut detail was to print *for part of the time* through a certain thickness of transparent medium, and for the remainder of the time in direct contact with the negative.

Turning to the case of values, Mr. Cherrill showed the use of this new printing-frame in lightening or darkening any portion of the print. In the case of lightening, the part to be reduced was simply blocked entirely out. This was done by means of a transparent mask made of thin celluloid, which could be painted over on the parts to be controlled. Such a mask was placed, in register, over the negative. The part to be operated upon was then painted boldly out with a non-actinic water-color paint. The position of the mask might be then reversed, and the printing commenced. The print would come out with a simple white patch for the part to be lightened. The frame might afterward be opened, the mask removed, and the printing continued with the negative only. The work might be varied at will, and changed to almost any extent during its progress. This was what he had called a "progressive control," and he showed several illustrations exhibiting the very large range of control which might be obtained in this way.

Mr. Cherrill further showed how by the employment of this frame it was possible to control a hard negative by using a transparent positive in conjunction with it, and also to harden such negatives as were too soft. The change in the character of the image, which resulted from working with negative and positive together, was a very valuable softening, especially in portraiture. He explained at length the preparation of the masks, or carbon and other transparencies, of which he had been showing the result.

Finally, he introduced to the notice of the members another form of control—the simplification of what existed in the negative, by the expedient of making a positive in register with the negative, and printing, not the two together, but the one after the other, so that the one might, in a measure, destroy the work of the other. With this frame, too, the effect of "sunning down" was easy and certain, and no complication of outline caused the smallest difficulty. Other interesting points in connection with control printing were raised, and the lecturer expressed the hope that the system would not be without its effect in raising art photography to a still higher level.—*English Amateur Photographer.*

With the Process Workers

By Will Sparks

The Composite Stop

Judging by reports from Europe and the East the composite stop has secured a foothold in process work. This stop is composed of a metal plate of the usual size and shape, but fitted inside of it are two smaller stops made of two shades of yellow glass. By the use of this simple contrivance all negatives are made with one exposure. There is no changing of the different stops at different intervals, and the operator is relieved of a great deal of anxiety and can devote his time to other work. The principle of the stop is plain. The dark portions of the copy only pass light through the small opening. The middle tints pass through the small opening and also through the lightest shade of glass. The high lights pass through all three and so lock up tight. What this stop will not accomplish can be accomplished by screen distance. The only objection to these stops is that they are quite expensive.

Type Proofs for Negatives

Sometimes it is desirable to make a colored back ground on a type printed label, or show card, with, perhaps, a few white letters. A simple way of doing this is to have the job set up in type, just as it is to be, then on a piece of French folio pull a press-proof with black ink. Use plenty of ink and as soon as printed go over it with bronze powder, preferably the copper-colored. Allow it to dry and dust off thoroughly. This impression can now be placed in the printing-frame and used as a negative. On zinc, sensitized with bichromate, the exposure will be about ten minutes in bright sunlight, and the print will have white letters on a dark ground. With very little manipulation the printer can get a great variety of effect and be sure of register.

The Middle Tones

It is said by some publishers, by way of compliment, that the tendency of modern, commercial half-tone work is to lose the middle tones of the copy. And it must be admitted that there is some truth in the statement, although it is an economic fault rather than a scientific one. These are days of keen competition and the photo-engraver must turn out his work in an economic manner or he will lose money. To do this a large number of negatives must be printed on the same plate, and to this end the negatives must be uniform. But uniformity in many instances is the death of the middle tone. It is true that if we do not see the copy we do not miss the middle tones and are perfectly satisfied with the bright black and white effect of the print. But when you have a photograph of a beautiful, delicate landscape with soft, white clouds in the sky and the half-tone man gives you a clean black and white with a cloudless sky there is reason to kick. So the process-worker should look out for the middle tones as much as possible. The middle tone is really the secret of a good painting. It is also the secret of a good photograph and should be the strong point of every half-tone, even if it is necessary to raise the price.

The Etching Process

A great many photographers and printers have asked me for a description of the process of etching printing plates. There are many things about the work which are not clear to them, so the following explanation of just what has to be done may prove satisfactory: I will take it for granted that the reader knows what a negative is. This is the first work to be done. I will simply describe the work of making line cuts, as that covers all the modus operandi of half-tone except the marking of a particular kind of negative. For line work the negative is made by the old wet-plate process and must be clear black and white. Just as though the glass were smoked and the lines scratched in it with a needle. A zinc plate is now polished and coated in the dark room with a sensitizing solution. Then both plate and negative are placed in the printing-frame which contains a heavy plate glass. Boards are placed on top and pressure

applied until plate and negative are in perfect contact. This work must be done very carefully, as too much pressure in one place would break both glass and negative. Heavy plate glass is expensive and often is a great loss to engravers. When plate and negative are in the frame it is exposed to light. For this operation the light passes through the clear parts of the negative and strikes the sensitive film of the plate, hardening it so that it is no longer soluble. The printing-frame is then taken back to the dark room and the plate taken out and covered with a thin film of specially prepared ink. Being placed in a tray of water those parts which were protected by the black of the negative wash off leaving the lines of the copy clear and clean. This is now dusted with a resinous powder that adheres to the ink lines. Heat is applied that melts the powder and the print is then in a substance that will resist acid. For the acid bath the liquid is kept flowing across the plate in waves until zinc is dissolved out to the depth of a piece of cardboard. To prevent acid from cutting under the lines it is necessary to protect the edges. This is done by dusting the work from one side with etching powder, heating it and repeating the process until all four sides have been dusted. After another dip in the acid bath the process is repeated, and so on as many times as are necessary to give the required depth. The large open spaces are cut out with a routing machine and the cut is then nailed to a base. It is then ready for the press.

For half-tone work a screen is placed in front of the plate while the negative is being made so that the shades of the photograph are broken up into lines and dots. Printing on the plate is often done just the same as for line work, but there are also many other ways of doing this. As a general thing the enamel process is made use of. Etching of course is not so deep as for line work, but it is on the same principle of removing the white and leaving the black.

Enameling Prints

An Illinois correspondent wants a formula for enameling prints. A professional advises the following:

Ether	1½	ounces
Alcohol, 90 degrees	1	ounce
Gun-cotton	8	grains
Glycerin	10	drops

This is applied with a brush and after drying the print has a most brilliant surface. The cotton can be increased to 10 grains if the varnish seem to lack sufficient body. This varnish is most excellent for protecting and brightening up prints which have been colored with transparent water-colors.

Drawing Direct on Zinc

Shops that make a business of doing drawing as well as making cuts, can often save a great deal on large work by making the drawing directly on the zinc. Many posters and show-cards are turned out nowadays by making a drawing on cardboard, photographing it, printing on the zinc and then etching. All the preliminary can be saved if the drawing is done directly on the zinc. Time and expense saved will double the profits. The process is simple but many artists do not understand it. First polish the zinc plate, then immerse for a few moments in a weak solution of caustic potash. Rinse under the tap and dry the plate quickly. Etching ink diluted with turpentine will flow on this surface as perfectly as Higgins on cardboard. The powdering and etching is done in the usual manner.

Half-tones From Wash Drawings

E. L. Stockton writes: "I have trouble making half-tone negatives from wash drawings. I succeed with good photographs but when I try wash drawings, even with the strongest black and whites I get a "flat" result. If I lock up the high lights my shadows are all gray. If I keep my shadows dark I have no high lights. Have tried everything I can think of. What is the matter?"

Answer: It is quite likely that you are working with too large a stop. Try a smaller set of stops and more separation. Remember that the high light on a wash drawing is a good deal stronger than the high light on a photograph and that the actinic quality of the so-called "black" on white paper is away above the reds or browns of a solio print. The difficulty you speak of is often experienced by old operators when working with some of the modern platinum prints. I have known men to work for hours over a platinum print that they would have "hit" the first time had it been solio.

Perchlorid of Iron from the Salt

Many etchers make complaint about the uneven quality of perchlorid of iron that is now on the market. Of course the best

article, C. P., is always good—but expensive. My advice is to use that, but if you don't mind the trouble, and are using a good deal, it will pay you to make your own. Those who do say that it is better than any on the market. Following is the way to proceed:

Take seven pounds of perchlorid and boil in an enameled iron pan in five pints of water; when the perchlorid has completely dissolved, the solution will be transparent. Take out a couple of ounces and stir into this portion strong liquid ammonia; the result will be a thick pasty precipitate of ferric hydrate, which should be turned into a filter paper in a funnel and be washed free from ammonia by letting water filter through it. When the drippings from the filter no longer give a blue tinge to red litmus paper, the washing is complete. Take an ounce of perchlorid from the boiled solution and add a small quantity of the pasty hydrate to it. If all the hydrate be dissolved, more will be required, and when it is seen that the hydrate is no longer taken up with the solution it will be evident that the latter contains no longer any free acid, and it is in a suitable condition for etching. Having noted the quantity used in the test you will know how much is required by the bulk. It will not matter if a bit too much be put in, as it will filter out. It is best to filter the liquid. A solution prepared in this way will be transparent, and will not become muddy and green as that which contains free acid. It also will be ready for use at once, and will not be likely to deposit the green scum of oxid on the plate, which is so difficult to remove. The solution should be diluted to thirty-five degrees Baumé.

Transferring Book Prints

Of all processes useful to the photo-engraver artist none will save more time than the transferring of newspaper and book illustrations to cardboard, particularly if the picture be one with lots of detail. The process is as simple as "rolling off a log" and about as sure. Make the softening solution this way:

Dissolve one dram common yellow soap in ten ounces hot water. Cut the soap into shavings to dissolve more easily. When it is cold add two ounces of spirits of turpentine and mix thoroughly. Pour this solution into a shallow dish and float the picture you wish to transfer in it, back down to the solution. When the paper containing the picture has taken up all the solution it will, lay it back down for a moment on blotter to absorb the surplus moisture; then place it on the bristolboard intended for the transfer, and submit the whole to all the pressure possible for a minute or so, when some of the ink from the print will be found transferred to the bristolboard. It is now only necessary to draw on top of the transfer with india-ink and when finished to rub off the transfer with a rubber. This gives a perfect copy for the engraver.

Varnish for Retouching Photographs

Occasionally the process-man is given a solio photograph that needs retouching, but as soon as this work is started the picture changes color wherever the retouching is applied. This is due, in most cases, to imperfect toning and fixing and such a picture will not last long. But the photo-engraver is not concerned with that. The picture will last long enough for him to make a cut. To overcome the difficulty it is only necessary to varnish the picture with a substance that will keep the water-color from reaching the chemicals that compose the picture. This varnish can be easily made by dissolving some clear white rosin in pure spirits of turpentine and brush on the photograph with a camel's-hair brush and dry over heat. Another varnish is clear alcohol varnish used dilute. The water-color will not take so well to this latter coating.

Kallitype Process

A subscriber writes concerning this process and asks if it is better to apply the solution with a brush or by floating the paper on the solution. The brush method is the best, but requires about twice the amount of solution. This does not matter greatly as the solution is quite cheap. A dozen sheets of paper ready for printing costing but a trifle more than the blank paper. Kallitype solution can be coated on almost any kind of paper whose surface is not too soft and absorbing, and the fiber of which contains no metallic impurities. No. 47 of the *Photo-Miniature* series contains a full and complete description of the process by a gentleman who has made the process the subject for much study and experiment.

The Amateur and His Troubles

By Fayette J. Clute

No Need of a Tripod

We started out a few Sundays ago for a trip over the hills after woodland scenes along the other side. I carried my six and a half by eight and a half Premo but no tripod. You all know what a bother a tripod is when one wants to travel as light as possible, particularly with hills to climb and thick timber to crowd through. Besides this, all my tripods are of the good heavy pattern. I was accused of forgetting to bring one, of losing it on the train, and even of forsaking my cap exposures for the charm of the shutter's click. When we arrived at a place that promised pictures I had only to cut off three small saplings with a stout knife I carried, tie them together near the top with my handkerchief, and then spread the three lower ends in the regulation way. The crotch formed above the handkerchief made a fine holder for the camera, and I found the others using my tripod rather than unpack and set up their own. I made several during the day, in fact, I had tripods to burn. That is the reason I did not carry one further than fifty feet. Sticks lying around often made even the use of the knife unnecessary.

A Large Photograph

Did you ever hear the story about the bell that rang so loud it took ten men to hear it? Well, they have made a photograph over in Germany that is on the same lines. It is thirty-nine feet long and a little less than five feet wide. Put this on a wall and at a distance at which photographic detail is all visible it would require several men to see it at once. Getting back far enough to bring it all within the normal range of vision. I can not see where it is any better than a small print held close enough to the eye to fill the same angle of vision at that decreased point. Of course the picture will cover a lot of wall space that might otherwise be blank but wall-paper is cheap, no doubt much cheaper than a print requiring six plates and five vignetting operations in order to destroy the joining marks. Will some American photographer, who is not too busy, kindly make one a few feet longer.

Night Scenes at the Exposition

Three correspondents have written me at this early date for information concerning the best method of going about the work of photographing the illuminations and other night displays at the St. Louis Exposition. There is no great difficulty about the work. An evening spent in intelligent experimenting will teach one more than I could write on the subject, using one whole number of the magazine. Choose a few subjects that include as many lights of varying intensity as possible. Study the brightness of the image on your ground glass and keep a record of the exposure given. When you come to try like subjects at the Fair, your ground glass and this data will be an unerring guide to correct exposure. Too long an exposure will flatten your pictures while an exposure too short will invite forcing in development, a certain cause of bad halation. Try a few shop windows at home. Hunt up one with a brilliant arc light between it and the camera. Experiment on these and use your good judgment. Backed plates will help and the orthochromatic kind are an improvement. A double-coated plate with an ortho. emulsion on top is a strong combination. At the same time I have seen two workers stand side by side and photograph a brilliantly illuminated arch and the one with ordinary plates get better results than his co-worker with all the advantages the plate-maker could offer. The first understood developing and judged the time about right. Development should be carried on with a slow-working solution and density, if additional density be required, it should be secured after detail has made its appearance in a quiet, ordinary way. Rushing matters only results in inky blackness as a setting for ghastly white circles of halation. Try and bear in mind how little real black there is in the vicinity of a good bright illumination. Put a white sheet of paper in the

darkest bit of shadow you can find in your selected view for practice and you will find you can see it from across the street. If you can get an indication of the same sheet of paper in your print you will be doing wonders. The trial will show you how easy it is to secure false results, or rather, how impossible it is to secure any other kind.

Fixing Plates in White Light

I see that somebody has "discovered" that plates could be fixed in white light. I am glad it was discovered if it was so entirely unknown before. I still fix my own plates in the dark room or at least see them safely rinsed from the developer and placed in the fixing bath. If you are going to intensify any of your negatives after fixing them you will be wise to ignore this "discovery." If you want to know why, try the experiment. Fix one plate in a safe light, another in a white light and then intensify the two with the common mercury and ammonia or sulphite process. You will either stop having recourse to intensification or you will move your fixing bath back into the dark room. Years ago I was developing a plate in the dark room of a camera club in another city and, using the room through courtesy, did not wish to keep others out who might wish to enter. The moment the plate was well developed the bolt was slid back. Just as I did so a couple of members entered and seeing the plate in the developer, started to make all kinds of excuses. I replied that white light had no effect on that particular brand of plates, giving them some fancy name that came to my mind at the moment. To prove my contention I allowed the door to remain open while I placed the negative in the fixing tray which stood where it received a good flood of light from the open door. They waited for its removal and were much astonished to find it had not been ruined. I suppose they have wondered many times since then where those particular plates were made, but now this gentleman has discovered that white light is not so detrimental to the fixing operation they may understand why my plate was not spoiled. It was my desire to save my friends from their own self-censorship that prompted me to invent those safety plates. I make this explanation in case the same gentlemen should read this paragraph.

Questions About Lenses

A correspondent in Iowa writes me a long letter to ask for some simple information about lenses, or at least the questions look simple. There is one peculiarity about lenses, facts that one soon observes when they come to answer questions concerning them. You can not explain one fact without dragging in about a dozen others, and these in turn necessitate the same sort of endless chain treatment. Particularly is this the case when you have no knowledge of just how familiar your questioner is with these other facts. I have sent this correspondent my copy of *Photographic Lenses* with a request that it be returned when read. It is the best way out of the difficulty. Any of my readers who wish to thoroughly understand the properties and action of lenses of different classes would do well to invest a dollar in the book. It is worth five, but just because it is written by two well-known lens-makers it is somewhat in the nature of an advertisement, although none the less valuable, and is sold accordingly. Tennant & Ward, 387 Fourth Avenue, New York, have it for sale.

About Reducing Negatives

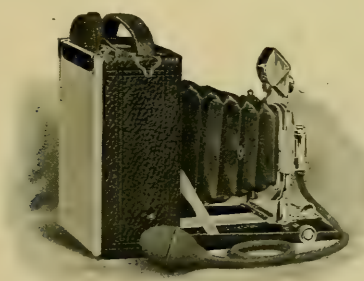
This persulphate reducer is such a power for good in certain cases, particularly those under-exposed and over-developed negatives that the snap-shot votary is so prone to reduce, that every amateur should attempt to master its simple requirements. I find so many who have tried it and given it up as unsatisfactory. It seems to be pretty well determined that a negative fixed in an acid-alum fixing bath seems to go wrong with this reducer as an after treatment. Another cause of failure is due to the peculiar action of the solution upon a negative. It seems to start slowly and gradually gain momentum until it is quite hard to check the reduction at exactly the right stage. This slow action at first invariably tempts the experimenter to strengthen the solution, with the result that all control is lost. With the potash reducer the action is exactly opposite. It starts off quite briskly and gradually becomes slower, often requiring several additions of the red prussiate of potash solution in order to complete the work.

Notes and Comment

Spring Shop Talk

At Christmas time when the dealer is busily engaged explaining why the Brownie would make the most interesting and instructive present you could possibly give the youngster and at the next moment is assuring your friend that no camera so cheaply constructed could be practicable, but that the Bulls Eye will do anything from portraiture to photomicrography, the men who grind the lenses and polish the brass are equally busy, back in Rochester, for new models must be ready for distribution within three months; and 90 per cent of all the cameras sold in the United States are manufactured in Rochester.

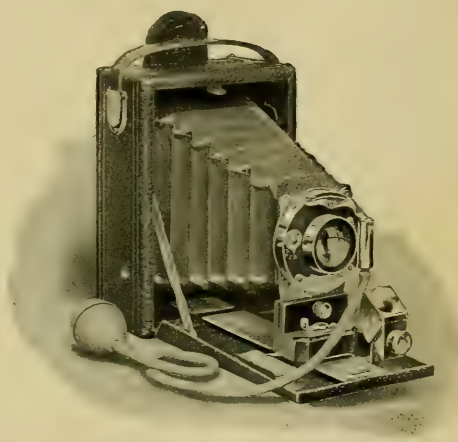
The evolution of the hand-cameras make an interesting study. Each year the standard makes appear in new trappings; all the improvements of the past year have been carefully tested; such as were found satisfactory retained, and the rest discarded to make room for new features. Simplicity and perfect workmanship seem to be the watchword in Rochester. The film pack, which was introduced by the Rochester Optical Company a year ago, enters very prominently



SHOWING THE FILM PACK ADAPTER

into the make-up of nearly all the instruments this season and is, without doubt, the most important photographic invention since the introduction of the daylight loading films; it being non-halative, non-curling and highly orthochromatic, this simple arrangement combines the most pleasing features of the film and the kodoid plates, while the fact that the film pack is made for the Rochester Optical Company by the Eastman people, acts as a guarantee of its high quality.

The Premo film pack cameras are offered in six different models, ranging in price from $5 to $25, and in three sizes 3¼x4¼, 4x5 and 3¼x5½. The last size, commonly known as the postal-card size, was first brought into prominence by the 3A Folding Pocket Kodak. All of the more expensive styles of the Premo line take the film pack adapters and among other marked improvements boast of a new automatic shutter, improved center swing, triple extension bed, automatic clamp and bridge, as well as a universal bed stop and an improved fastener for the reversible back.

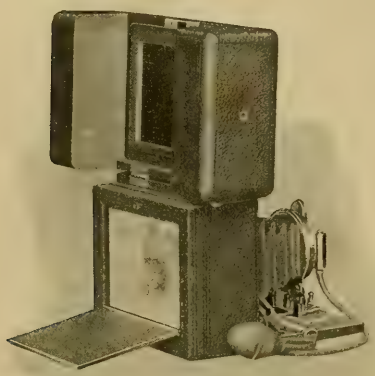


3¼ x 5½ FILM PACK PREMO

The Blair Company have added but three new models to the Weno H. E. line, but each of these is certain to prove popular with the amateur. The new No. 3 is of the "Ever Ready" type, is fitted with an automatic shutter and universal set focus acromatic lens, takes a 3¼x4¼ picture and has both horizontal and vertical brilliant finders. The nickel trimmings and morocco grain leather used make this a rich and neat instrument.

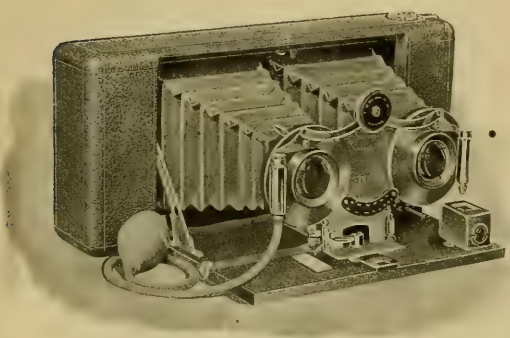
The success of the Stereo Hawk Eye model 1 has prompted the construction of a higher grade Stereo film camera, and the 1904 model 2 retains the same dimensions, weight and capacity as the old model, but is fitted with a Bausch & Lomb auto stereo shutter and extra R. R. lenses, which complete the ideal compact high-grade camera for stereo work. The third of this interesting trio is a

complete combination of the plate and film methods. It is called the No. 3 Combination Hawk Eye and is really a double camera box with a single bellows.



THE NEW COMBINATION HAWK EYE

This Hawk Eye is so constructed that a film chamber may be removed and a plate adapter placed in its position, transforming the entire outfit from a film to a plate camera or vice versa. As the films and plates are in the same focal frame, only one focusing scale is required and the entire scheme has been worked down to an exceedingly simple and satisfactory basis. The instrument is adapted to use perforated daylight loading No. 3 F. P. K. Blair Cart. or No. 3 F. P. K. Eastman films.

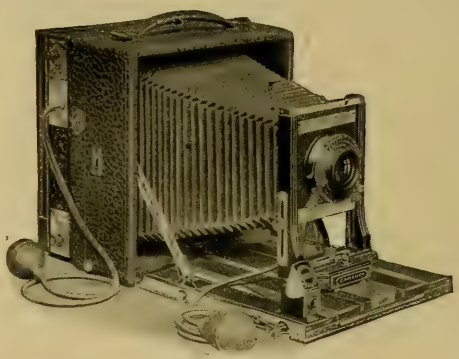


NEW MODEL STEREO HAWK EYE

It is indeed unfortunate that a delay in the issuing of the Century catalog makes it impossible for us to give the CAMERA CRAFT readers a detailed account of the many new features that will be shown on this line of cameras this spring.

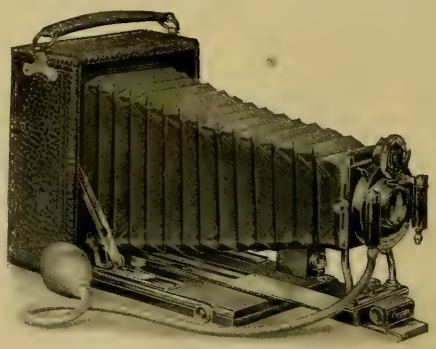
An entirely new and novel attachment for hand-cameras, and one which is as surprising as it is welcome, is the new revolving reversible back which all Century instruments will be fitted with during this year.

With the form of hand-cameras made with the old-style reversible back, it is necessary in order to change a plate from a horizontal to a vertical position, to detach the entire back either by releasing a spring or pressing a button, then turn the back over and again adjust it to the camera in the reverse position.



SHOWING CENTURY CURTAIN SHUTTER

The new revolving back enables the photographer to decide instantly what view of his object will be the most satisfactory, for the reason that the reflected image can be seen with the ground glass focusing scale in either the horizontal or vertical position



NEW LONG FOCUS CENTURY PETITE

without detaching the back. This change is made by simply pressing a spring catch at the side, and swinging the back of the instrument into the position desired. In this way you do not disturb the camera, or any part of it. The Century Company have also placed on the market a new plate-holder with a patent spring bar, which resembles the Premo holder, and is a great improvement on their older styles.